

# SYLLABI

FOR  
STANDARDS XI AND XII

**GENERAL SUBJECTS**

( To be introduced in Standards XI and XII from the academic year  
2012-2013 and 2013-2014 respectively )



As sanctioned under Government of Maharashtra,  
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**Maharashtra State Board of Secondary  
and Higher Secondary Education  
Pune - 411 004.**



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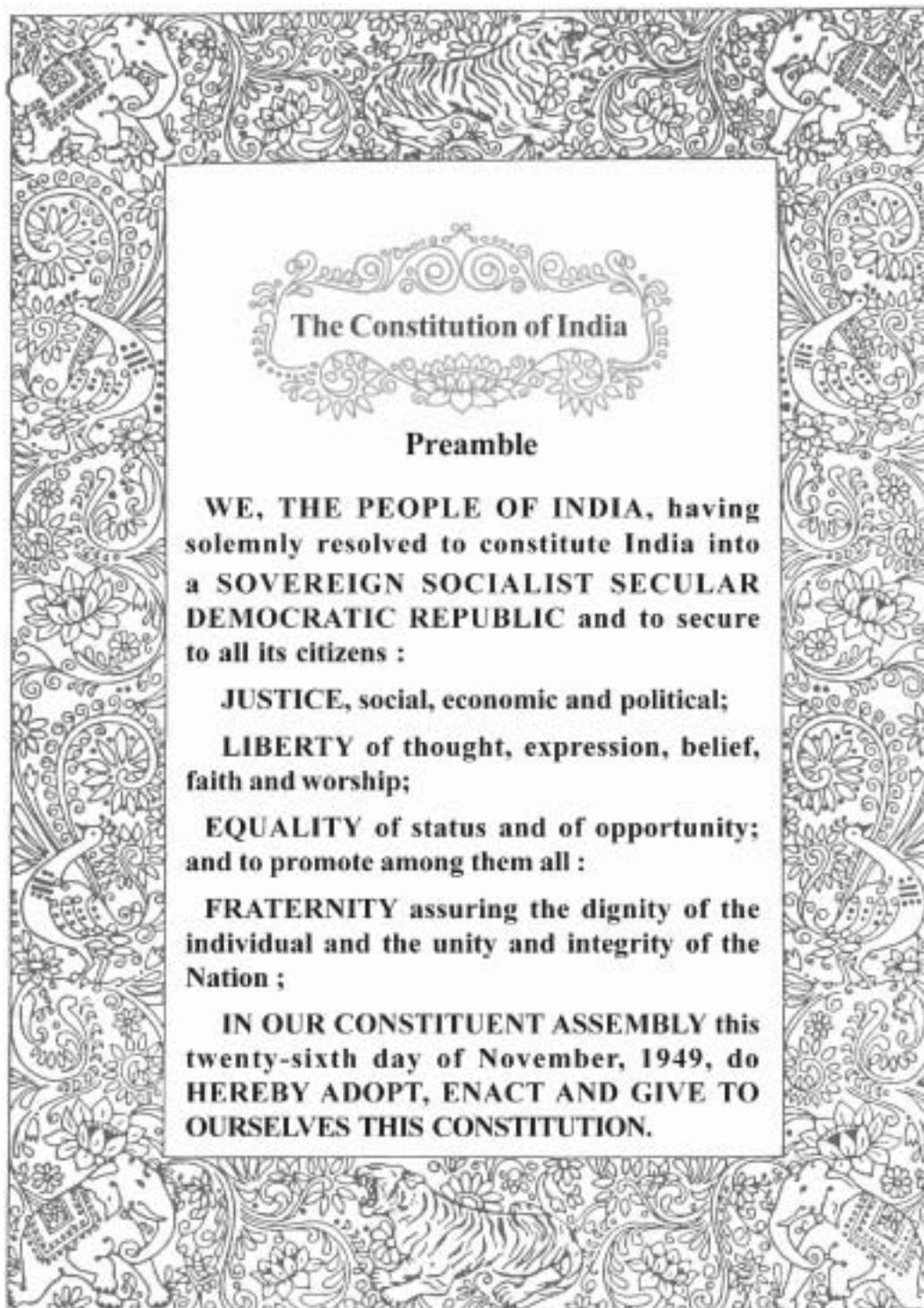
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## The Constitution of India

### Preamble

**WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens :**

**JUSTICE, social, economic and political;**

**LIBERTY of thought, expression, belief, faith and worship;**

**EQUALITY of status and of opportunity; and to promote among them all :**

**FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation ;**

**IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**





## PLEDGE

**India is my country. All Indians are my  
brothers and sisters.**

**I love my country and I am proud of  
its rich and varied heritage. I shall  
always strive to be worthy of it.**

**I shall give my parents, teachers and  
all elders respect and treat everyone  
with courtesy.**

**To my country and my people, I  
pledge my devotion. In their well-being  
and prosperity alone lies my happiness.**





## NATIONAL ANTHEM

Jana-gana-mana-adhināyaka jaya hē  
Bhārata-bhāgya-vidhātā,  
Punjāba-Sindhu-Gujarāta-Marāthā  
Drāvida-Utkala-Banga  
Vindhya-Himāchala-Yamunā-Gangā  
uchchala-jaladhi-taranga  
Tava subha nāmē jāgē, tava subha āsisa māgē,  
gāhē tava jaya-gāthā,  
Jana-gana-mangala-dāyaka jaya hē  
Bhārata-bhāgya-vidhātā,  
Jaya hē, Jaya hē, Jaya hē,  
Jaya jaya jaya jaya hē.



## FOREWORD

“Education plays a vital role in shaping the destiny of the nation” is an old dictum which percolates in all spirit while restructuring the syllabi, the fifth phase of change, ever since the State accepted 10+2 pattern of education. Marked as the premier syllabi of the twenty-first century, it intends to empower the students for confronting the present and future challenges of life and be citizen of tomorrow, in letter and spirit.

The syllabi for the different subjects have been restructured after the careful reflection of the analogous documents of the different States and that of ‘NCERT’s “National Curriculum Framework of School Education 2005” keeping the standard at par with the National level. The unique position of the State, the local needs and aspirations of the people are duly considered in Maharashtra State Curriculum Framework 2010. The expectations as envisaged in the document are well reflected into the making of the syllabi. A solid base for the foundation of the new syllabi is being provided by the other documents, such as ‘Right to Education 2009’ and ‘Learning without Burden’. Infact, these documents are the motivating documents that have prompted to restructure the syllabi. These documents have raised many issues that are social, economical, cultural and so on. They need to be immediately addressed through the revised textbooks. The syllabi will provide the essential structure to remould with the expectations of new era. While restructuring the syllabi the Board had undertaken various studies, such as, comparative analysis of the syllabi of NCERT and the syllabi of the different states, analysis of the information/suggestions collected through widely circulated questionnaire, newspaper reports, historical perspective, etc. A critical exercise of knowing the expectations of the stakeholders was carried out with a specially designed questionnaire, which proved helpful in shaping the ‘syllabi of the people’.

The curricular concerns ushered in due to the National, International, Global affairs, political, social, economic upheavals along with explosion of knowledge and technology have all been reflected in the syllabi. The metamorphosis experienced in the last decade in all the fields of life and envisaging the aftermath of the circumstances have been rightly interwoven in the fabric of the different subjects, making the syllabi truly needbased, futuristic fulfilling the requisitions of the stakeholders.

These syllabi will be implemented progressively in Stds. XI and XII commencing from the academic year 2012-2013 and 2013-2014 respectively. It is hoped that the syllabi will be received warmly and in its right earnest.

As a remarkable feature of the syllabi Information and Communication Technology Skill (ICT) will be introduced as a compulsory subject from Std. IX. It is hoped that it will take the students of Maharashtra far above the national standards.



**Sarjerao Jadhav**

Chairman

Maharashtra State Board of Secondary and Higher  
Secondary Education, Pune - 411 004.



# INTRODUCTION

## Analytical Perspective on Curriculum Development

### Background

Taking into consideration the recommendations of the Kothari Commission (1964-66) and National Education Policy (1968), the State of Maharashtra adopted the 10+2+3 educational pattern and implemented uniformly throughout the state. Accordingly the first Secondary School Certificate Examination on the new syllabi was held in April 1975. The implementation at the +2 stage for Std. XI and Std. XII was done from the academic year 1975-76 and 1976-77 respectively. The first Higher Secondary Certificate Examination was held in April 1977.

Subsequently the syllabi were revised based on the recommendations of Dr. Ishwarbhai Patel National Review Committee. This was implemented for Std. VIII from the academic year 1982-83 and first S.S.C. Examination was conducted in March 1985. It was implemented at the +2 stage from the year 1985-86 and 1986-87 respectively and the first Higher Secondary Certificate Examination was held in March 1987.

Based on the National Policy of 1986 the syllabi were again restructured for the third time. These syllabi were implemented for Std. IX and Std. XI simultaneously in the academic year 1994-95 and for Std. X and Std. XII in the year 1995-96. The first Secondary School Certificate and Higher Secondary Certificate Examinations were held in March 1996 by the Board.

Taking inspiration from National curriculum Framework 2000, the enterprise of restructuring the syllabus was undertaken. Keeping up with the National Standards the revised syllabus was prepared and it was implemented in the schools in the year 2005 and 2006 and subsequently in the year 2006 and 2007, By the time the revised course was introduced, National Curriculum Framework 2005 was published. In the light of the recommendations inspection of the syllabi and textbooks was made, considerable changes were also made. However, taking into consideration the position papers published by NCERT in connection with NCF 2005 Maharashtra State Curriculum Framework was prepared. This again gave a rise to rethink of restructuring the syllabi. The first Secondary School Certificate examination and Higher Secondary Certificate examination will be held in the year March 2014.

### Participative restructuring of the Syllabi

While restructuring the syllabi after almost a decade, a variety of exercises were undertaken by the State Board to ensure a broad-based participation of the stakeholders. Syllabi are often criticized as being framed by experts in ivory towers and stakeholders' views are ignored. The syllabi fail to reflect the needs and aspirations of the society. To pre-empt this, the State Board undertook various studies before forming its policy. This also ensured the adopting of the 'bottom up' policy i.e. taking into consideration the needs of the society before framing the syllabi.



A comprehensive questionnaire was developed covering various issues relevant to the framing of syllabi, such as scheme of the subjects, nature of textbooks, contents of the textbooks, teaching-learning process, evaluation process, inclusion of non-scholastic subjects, need to bring quality into education, need to include life skill education, etc. The questionnaire was focused and yet kept open for the public to comment on.

The respondents were requested to make a note of their expectations from the new syllabi and give valuable suggestions. The respondents to the questionnaire included headmasters, teachers, parents, experts in education, and heads of the institutions, social workers, education officers, deputy directors of education, elected members, government officers, students and regular website surfers. The exercise gave everyone the opportunity to have their say in framing the syllabi of the State. It was also made available through a website. The responses received were analysed and the observations were made available to the various Subject Boards of Studies for their consideration. Thus, an effort has been made to make the syllabi truly of the people and by the people.

### **Other Studies**

Apart from the questionnaire the State Board also undertook various studies to have the relevant database for revising the syllabi. The study was again reported while restructuring the syllabi.

#### **1. Subjectwise review of previous Syllabi**

The study included a review of the old existing syllabi implemented in the State from time to time. It is to be noted that in keeping with the changing needs of

the times, the Board incorporated changes in the content, approach, methodology, etc. in the syllabi at every stage. In framing the new syllabi, again, a conscious effort was made to include challenging areas to keep pace with the challenges of the changing world scenario.

#### **2. Comparative analysis of the Syllabi of other States**

Before, framing its own policy as in-depth study of the syllabi of various subjects from different State Boards of Education in India was undertaken. The major objectives of the enterprise were -

1. To compare difficulty levels of syllabi in Maharashtra with that of syllabi of other States.
2. To decide the importance to be accorded to a particular subject in the curriculum set up.
3. To analyse the structuring of the content of the syllabi.
4. To study the scope and limitations of different subjects.
5. To study the scope and limitations of content.
6. To decide the best approach towards teaching and learning.
7. To compare the syllabi through different perspectives.
8. To study the evaluation system.
9. To find out which syllabus is closest to our needs.
10. To find out the extent to which the syllabi in Maharashtra are at par with the syllabi of other States.
11. To establish a foundation for restructuring the syllabi.
12. To undertake the necessary research and



restructuring the syllabi.

Different parameters of observation were decided upon and detailed reading of the syllabi was undertaken. The parameters included -

1. The place of the subject in the curriculum.
2. Objectives of the syllabus.
3. Presentation of the syllabus.
4. Contents of the syllabus.
5. Suitability of the textbooks with respect to the syllabus.
6. Periods to be allotted.
7. Evaluation pattern.
8. Total marks to be allotted to the examination.
9. Duration of the examination.
10. Minimum marks for passing.
11. Design of the question paper and test items.

The Syllabi of the different States like Tamil Nadu, Jammu and Kashmir, Madhya Pradesh, Karnataka, Andhra Pradesh, and West Bengal were considered. The syllabi of NCERT, CBSE and ICSE were also studied and a comparative statement was evolved to note the status of the State's position. An attempt was made by the Boards of Studies to incorporate the best in all these syllabi after considering the local needs and the background of our students. The exercise was an effort to keep the State syllabi at par with national standard.

### 3. Study of the Newspaper Cuttings

Often the public expresses its opinions about various issues pertaining to education through newspapers. Therefore, cuttings of newspapers dealing with educational issues.

### 4. Reactions of Expert Teachers

To ascertain the valuable opinions of the

experienced teachers in the field regarding the existing syllabi of different subjects questionnaire was sent to about hundred teachers of different subjects throughout the state. They were requested to send their responses. The questionnaire was framed so as to elicit the reactions of these teachers regarding objectives, content and presentation of the syllabi:

1. Under 'Objectives' the study aimed at examining:
  - 1.1 The suitability of the objectives in each subject
  - 1.2 Clarity of the objectives
  - 1.3 Scope and limitations of the objectives
  - 1.4 Drawback of the objectives
  - 1.5 Changes needed in the objectives to suit the changing times
2. Under 'content' of the subject, reactions to the following points were studied:
  - 2.1 Desired contents in the syllabus
  - 2.2 The suitability of the content
  - 2.3 Scope and limitations of the content
  - 2.4 Drawbacks in the content
  - 2.5 The changes called for in the content to suit the changing needs of the times
3. Under 'presentation' of the syllabus, opinions on the following issues were studied :
  - 3.1 Objectives
  - 3.2 Teaching-learning process
  - 3.3 Textbooks and learning material
  - 3.4 Evaluation process
  - 3.5 Reference material

The views have immensely helped the State Board in framing the restructured syllabi.



## Features of the restructured Syllabi

The periodic reframing of the syllabi of almost all the subjects ensures an adequate coverage of knowledge and information in accordance with the times and the age group of the learners. It also ensures that a proper place is given to the culture, heritage, social reforms, life skills, students' interests and needs, and that cognizance is taken of the different abilities of students from heterogeneous backgrounds.

The Supreme Court has given fresh verdict regarding the subject Environment Education, duly it will be considered as an integral part and will be introduced as integrated and interdisciplinary course in all the subjects. The syllabi specially designed with this intention will be considered.

An effort has been made to make the syllabi more futuristic and user friendly. Rapidly changing lifestyles and the explosion of knowledge and information have been taken into consideration. In order to make the citizen of tomorrow more concerned and able individual the frontline issues have been given due consideration in all the subjects. The following areas were focussed upon -

1. Using constructive approach
2. Training in life skills
3. Education to develop vocational skills
4. Education in stress management
5. Education in information and technology
6. Teaching communication skills
7. Environment awareness and the need for ecological preservation
8. Value education
9. Education enhancing general knowledge.
10. Education to enable students to face the challenges of liberalisation, privatisation and globalisation
11. Education for fighting terrorism and emergency management
12. Education for improving emotional quotient
13. Creating consumer awareness
14. Safeguard human rights
15. Creating awareness regarding space technology
16. Genetic engineering
17. Biotechnology
18. New areas of health care
19. Energy problems
20. World geography
21. World Trade Organisations
22. Anthropological discoveries
23. Entrepreneurship
24. Water Management
25. Awareness regarding agriculture
26. Awareness regarding child labour
27. Eradication of superstition
28. Travel and tourism
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30. Education for Peace



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## Scheme of Subjects for the Higher Secondary Classes

### 1. Compulsory Subjects

Students in Standards XI and XII will have to offer

- i) English-as a compulsory language
- ii) A Modern Indian Language or A Modern Foreign Language or A Classical Language or Information Technology or General knowledge (for Military schools only)
- iii) Environment Education
- iv) Health and Physical Education

### 2. Elective Subjects (any four):

- |     |    |                           |   |   |
|-----|----|---------------------------|---|---|
| *   | 1. | A Modern Indian Language  | } | Other than one offered under compulsory languages |
| **  | 2. | A Modern Foreign Language |   |   |
| *** | 3. | A Classical Language      |   |   |
4. History
  5. Geography
  6. Mathematics and Statistics, {For Arts and Science}
  7. Mathematics and Statistics (For Commerce)
  8. Geology
  9. Political Science
  10. Home Management (For Std.XI only)
  11. Food Science (For Std.XI only)
  12. Child Development (For Std.XII only)
  13. Textiles, (For Std.XII only)
  14. Sociology
  15. Philosophy

16. Logic
11. Psychology
18. Economics
19. Book-Keeping and Accountancy
20. Organisation of Commerce and Management
21. Secretarial Practice
22. Co-operation
23. Physics
24. Chemistry
25. Biology
26. Drawing
27. Design and Colour
28. Pictorial Composition
29. History of Art and Appreciation
30. History and Development of Indian Music
31. Vocal Light Music
32. Vocal Classical Music
33. Instrumental Music
34. Percussion - Instrument
35. Agriculture Science & Technology
36. Animal Science Technology
37. Defence Studies
38. Education
39. Occupational Orientation
40. Information Technology (Arts)
41. Information Technology (Commerce)
42. Information Technology (Science)



43. General Knowledge (For Military schools)

\* **Modern Indian Languages**

1. Marathi
2. Hindi
3. Gujarati
4. Urdu
5. Kannada
6. Tamil
7. Telugu
8. Malayalam
9. Sindhi
10. Bengali
11. Punjabi

\*\* **Modern Foreign Languages**

1. German
2. French
3. Russian
4. Japanese

\*\*\* **Classical Languages**

1. Sanskrit
2. Pali
3. Ardhamagadhi
4. Persian
5. Arabic
6. Avesta-Pahlavi

**3. Medium of Instruction**

Any one of the following languages can be adopted as the medium of instruction.

1. English
2. Marathi
3. Hindi
4. Gujarati
5. Urdu
6. Sindhi
7. Kannada

4. The standard of passing in each subject should be 35 percent and a student will have to pass in all the seven subjects.

**Note :**

“A bonafide foreign candidate residing in India for temporary period not exceeding two academic years and seeking admission in Std.XI or Std.XII shall be permitted to offer Arabic or Persian under elective group, as a Modern Foreign Language, under compulsory group. Such permission shall be given after scrutiny of each case on its merits, by the concerned Divisional Board.”



# Languages : Scheme of Evaluation

## English

### Written Test

Sr.No.	Unit	Std. XI and XII (Marks)
1.	Prose	25
2.	Poetry	8
3.	Grammar	12
4.	Writing	27
5.	Rapid Reading	08
	<b>Total</b>	<b>80</b>

### Oral Test

1.	Listening	06
2.	Loud reading	04
3.	Speaking	05
4.	Conversation	05
	<b>Total</b>	<b>20</b>

### Modern Indian Languages

1. Marathi    2. Hindi    3. Urdu    4. Gujarati    5. Kannada  
6. Tamil    7. Telugu    8. Malayalam    9. Sindhi    10. Punjabi    11. Bengali

### Written Test

Sr.No.	Unit	Std. XI and XII (Marks)
1.	Prose	22
2.	Poetry	18
3.	Grammar	10
4.	Writing	20
5.	Rapid Reading	10
	<b>Total</b>	<b>80</b>

### Oral Test

1.	Listening	06
2.	Loud reading	04
3.	Speaking	05
4.	Conversation	05
	<b>Total</b>	<b>20</b>



## Classical Language

1. Sanskrit    2. Pali    3. Ardhamagadhi    4. Persian    5. Arabic  
6. Avesta-Pahalavi

### Written Test

Sr.No.	Unit	Std. XI and XII (Marks)
1.	Prose	30
2.	Poetry	20
3.	Grammar	15
4.	Writing	10
5.	Rapid Reading	05
	<b>Total</b>	<b>80</b>

### Oral Test

1.	Listening	05
2.	Loud reading	05
3.	Speaking	05
4.	Conversation	05
	<b>Total</b>	<b>20</b>

## Modern Foreign Language

1. French    2. German    3. Russian    4. Japanese

### Written Test

Sr.No.	Unit	Std. XI and XII (Marks)
1.	Prose	15
2.	Poetry	--
3.	Grammar	40
4.	Writing	10
5.	Rapid Reading	15
	<b>Total</b>	<b>80</b>

### Oral Test

1.	Listening	04
2.	Loud reading	06
3.	Speaking	05
4.	Conversation	05
	<b>Total</b>	<b>20</b>



**Allotment of periods (per week) for Standards XI and XII  
Total working days 230 in an academic year**

Sr. No.	Faculty	Compulsory Subjects (Three)				Elective Subjects (Four)	One of the following N.C.C N.S.S./ Health and Physical Education	Total	
		English		A Modern Indian Language OR A Modern Foreign Language OR A Classical Language					Environment Education*
		Lectures	Tutorial	Lectures	Tutorial				
1	Arts and Commerce	4	1	4	1	2	2	38	
7	Science	4	1	4	1	2	2	46	

**N.B.:-** 1. The subjects involving practicals should have 4 periods for theory, 3 periods for practicals and 1 period for tutorial.

2. \* The subject Environment Education is Compulsory to students of all faculties, i.e. Arts. Commerce. Science, Bifocal Vocational and Minimum Competency Based Vocational Courses.
3. \*\* The subject Information Technology (IT) is optional to Second Language (i.e. A Modern Indian Language or A Modern Foreign Language or A Classical Language)
4. The subject Information Technology is also included in the group of Elective Subjects.
5. The subject Information Technology has 8 periods per week (5 periods for Theory and 3 periods for Practicals)
6. \*\* For the students of Military schools only, the subject General Knowledge is optional to Second Language (i.e. A Modern Indian Language or A Modern Foreign Language or A classical Language) and it has 6 periods per week.





7. The period and tutorials should be of 35 10 40 minutes duration each. One tutorial for subjects involving practicals may be arranged per week according to needs for hatches of 20 to 40 students. The number in each batch should not exceed 40 in any case. Period of tutorials may be exchanged for practicals. The tutorials will be conducted by the teachers themselves.
8. Heads of Higher Secondary Institutions are free to alter some periods for different subject according to their needs.
9. For Mathematics and Statistics practical there will be a batch of 40 students and 2 periods will be allotted. After having divided the students in batches consisting of 40 students each, if minimum 20 students are left out, it may be considered as one batch and 2 periods will be allotted.
10. Implementation of the music practical subject
  - A) For teaching a music practical subjects (sub grade no. 66,67,68) the maximum number of students in one batch should be twenty only.
  - B) for vocal light & vocal classical music (sub grade no 66, 67) there should be separate batches for boys and girls, based on the natural vocal limitation.
  - C) There should be six periods on a week (one period every day) for all music practical subjects per batch.
11. The subject Geography and Geology has 8 periods per week (For Arts, Commerce & Science Students). 4 periods for Theory 3 periods for Practical. 1 period for Tutorial.
12. The Health and Physical Education is Compulsory Subject i.e. for Arts, Com., Science and also M.C.V.C. & Bio focal student. it should have written and Practical Exam.



## (A) Compulsory Subjects

### English (01)

#### Introduction

The curriculum for the subject of English at Std. XI and Std. XII has been prepared bearing in mind the curriculum of English for the classes I to X in Maharashtra, the National Curriculum Framework & State Curriculum Framework, the curriculums of English in the other states of India, current thinking in curriculum development and curriculum implementation, and the views/opinions expressed by teachers on the existing curriculum frame work.

#### Characteristic Features of the new curriculum

1. In pursuance of the existing policy of the State Government, a common course in the subject of English has been designed for the learners from the English medium and the Non-English medium schools.
2. The course offers opportunities for remediation, consolidation and extension of the language skills already learnt.
3. The course endeavors to meet the functional (communicative), literary (aesthetic) and cultural (integrative) needs of the learner.
4. The course provides opportunities for meeting the linguistic needs of the vocational as well as the academic stream. It aims at preparing the learner linguistically to undertake different professional courses like Medicine, Engineering and to pursue different types of undergraduate courses in various streams such as Science, Law, Commerce, Humanities, Agriculture, etc. It also aims at helping the learner to face the wider world of work.
5. The National Curriculum Framework, the State Curriculum Framework and the policy of the State Government underscore the need of making education learner-centered and adopting the constructivist model of education. The role of the learner is that of an active participant and the role of the teacher is that of a facilitator of learning. The focus is on the process of learning. The learner is expected to 'discover' and 'construct' his/her learning.
6. The major thrust of this curriculum is on the development of communication skills. Along with the basic language skills of Listening, Speaking, Reading and Writing, the skills such as narrating, describing, reporting, summarizing, persuading, note-taking, note-making, etc. have also been focused.
7. The course makes a conscious effort of helping the learner to sharpen his/her literary sensibility, by offering him/her opportunities to read and discuss a variety of literary texts.
8. In view of the developments in the field of Information and Communication Technology, the Board recommends increasing use of technology for effective implementation of the curriculum of English.



## General Objectives

### To enable the student to

1. develop his/her language skills to a fair degree of proficiency.
2. acquire communication skills in English useful in real life situations.
3. enrich his/her vocabulary.
4. use English in appropriate grammatical forms.
5. develop reference skills and inculcate self-study habits.
6. use English not only as a library language but also as an important language of communication.
7. cultivate a broad human and cultural outlook.

## Specific Objectives

### Listening Skill

#### To enable the student to

1. enjoy and appreciate the rhythmic beauty of various types of poems read out by the teacher in the class.
2. listen with fair comprehension to spoken English dealing with ordinary or specialized topics in known and unknown vocabulary.
3. acquire a global understanding of a variety of texts of a reasonable length read out/played on a cassette/C.D.
4. listen to passages of a reasonable length read out/recorded for getting specific information and to answer questions based on them.
5. listen to speeches or passages for the purpose of taking notes.
6. listen to oral instructions in order to perform a given task.
7. understand read out or recorded stories,

narrations, descriptions, pieces of information of a reasonable length so as to ask pertinent questions on them.

8. identify relevant/irrelevant points in the passages, speeches after listening to them.
9. infer a speaker's attitude/intention and grasp the message given in the speech.
10. listen to, comprehend and enjoy live as well as recorded presentations like skits and plays and notice the sequence of incidents in them.
11. understand oral communication without face to face interaction (e.g. telephonic conversation or messages).
12. listen with comprehension to lectures, talks, conversation, news-bulletins and interviews.
13. understand nuances conveyed through stress and intonation.
14. enjoy and appreciate various literary forms to get sensitized to literary language and experiences.
15. identify the genre and register of a text after listening to it.
16. apply listening skill to other activities like discussions, debates, reading and writing.

### Speaking Skill

#### To enable the student to

1. enjoy reciting poems with proper accent, rhythm and intonation.
2. speak in syntactically acceptable forms/patterns.
3. speak with acceptable pronunciation and play variety of roles in different contexts.
4. speak coherently, fluently, confidently and intelligibly on a given topic for a reasonable period of time with appropriate body language.



5. answer questions orally showing clear understanding of subject matter.
6. frame oral instructions, ask for and offer directions, advise, persuade, express intentions, etc.
7. converse appropriately in formal and informal contexts, considering the role-relationship, the topic and the situation.
8. make oral presentation on a given topic for a reasonable span of time in an ordered manner.
9. present oral reports on planned events, projects, etc.
10. compere programmes, narrate incidents and experiences.
11. take part in group discussions, interviews, debates and elocution competitions.
12. cope with distance communication, telephonic conversation, effectively.
13. comment on the writer's point of view.
14. prepare for other need based functional activities requiring oral communication.
15. communicate nuances through stress and intonation.
9. understand grammatical sentences and their implications.
10. read brochures, reviews, reports, news items to get information.
11. read silently to find out the suggestive meaning in a poem and a prose text.
12. distinguish the main ideas from the subsidiary information.
13. read extensively so as to develop interest in different forms of literature and styles of writing.
14. read so as to make notes, to summarize and to classify.
15. use the information given in the text to respond to e.g. advertisements.
16. understand and appreciate features of literary style.

### **Reading Skill**

#### **To enable the student to**

1. improve the speed of reading.
2. read in order to find the intention and attitude and bias of the writer.
3. read aloud and appreciate the rhythm of a poem.
4. adopt different reading strategies depending on the type of texts and the purpose of reading.
5. skim as well as scan the text.
6. read and predict the events to come.
7. read in order to infer through the context.
8. read non-verbal presentations such as railway time-table, graphs, charts, etc.
1. acquire the mechanics of writing including handwriting, the use of punctuation marks, capital letters and correct spellings.
2. write correctly and neatly, using appropriate vocabulary and grammar.
3. write answers to the questions on textual and non-textual reading material showing his/her acquisition of sub skills of reading.
4. write coherently on a given topic using appropriate discourse features.
5. write expository, argumentative essays of about 250 to 300 words.
6. write formal and informal letters for various purposes.
7. acquire ability to draft notices, leaflets, announcements.
8. prepare short write-ups for school magazines/newspapers and wall-papers.
9. develop a draft of a dialogue.



10. write short reports on news, interviews, visits and functions.
11. write notices, agendas and minutes of meetings.
12. develop advertisements, with the help of clues given.
13. make notes based on the given text leading to summarizing.
14. prepare a write-up showing his/her understanding of the information given in non-verbal forms and vice versa.
15. convey in writing his/her understanding and appreciation of different literary forms.
16. write curriculum vitae.

### Vocabulary

Development of vocabulary has its importance in language learning. Learners need to be helped in the consolidation and extension of their vocabulary. Learners need to learn how to understand meanings of words with the help of context and how to use words in an effective way. The coursebooks and other materials will offer necessary guidance in this regard.

### Grammar

Grammar has an important role to play in the teaching and learning of English. However, our focus has to be not so much on the rules of grammar but on the use of grammar. The knowledge of grammar should lead to an effective use/application of the skills of listening, speaking, reading and writing. Therefore, the focus has to be on the functional aspects of grammar and not on the formal ones.

<b>Std. XI</b>		
<b>a)</b>	<b>A Coursebook in English (Yuvabharati)</b>	
<b>1.</b>	<b>For Detailed Study</b>	
	<b>i) Prose :</b>	About 80 pages of literary and non-literary (informative) texts/passages (excluding notes, illustrations, tasks, etc.)
	<b>ii) Poetry :</b>	About 200-250 lines
<b>2.</b>	<b>For Non-detailed study</b>	
	A selection of literary and non-literary texts (Longer Pieces) : About 40 pages.	
<b>b)</b>	<b>Grammar</b>	
<b>Sr. No.</b>	<b>Items</b>	<b>Specification</b>
	Revision of the items learned up to Std X.	
1	The Tenses	Revision of the tenses learned upto Std. X. Advanced level of the above items.



2.	Types of sentences	Simple, Compound, Complex, Relative clauses.
3.	Clauses	Proper usage and synthesis.
4	Verbs of perception	Uses of see, hear, smell, feel, taste and know, have, own think, etc.
5.	Voice	Statements, questions, indirect objects, object + object complement, negatives. (Advanced level) (Conversion)
6.	Reported Speech	Advanced level, continuous short paragraph consisting of three to four connected sentences.
7	Collocation	The co-occurrence of lexical items.
8	Uses of 'too' and 'enough'	Conversion and synthesis.
9.	Modal Auxiliaries	Will, shall, can, could
10.	Articles	Uses and omission of 'a', 'an', 'the'
11	Prepositions	Indicating time, place and direction.
12.	Linking words/discourse markers	Use of linking words in sentences and in larger units.
13.	Word formation	Changing word forms-nouns, verbs, adverbs, adjectives
14.	Infinitives, Gerunds and Participles	Usage and synthesis

### Std. XII

<b>a)</b>	<b>A Coursebook in English (Yuvabharati)</b>	
<b>1.</b>	<b>For Detailed Study</b>	
	<b>i) Prose</b> : About 80 pages of literary and non-literary (informative) texts passages (excluding notes, illustrations, tasks, etc.)	
	<b>ii) Poetry</b> : About 200-250 lines	
<b>2.</b>	<b>For Non-detailed study</b>	
	A selection of literary and non-literary texts (Longer Pieces) : About 40 pages.	
<b>b)</b>	<b>Grammar</b>	
<b>Sr. No.</b>	<b>Items</b>	<b>Specification</b>
	Revision of the items learned up to Std XI.	
1	The Tenses	Advanced level of the tenses learned upto Std XI. Sequence of Tenses.



2.	Types of sentences	Simple, Compound, Complex, Relative clauses.
3.	Clauses	Proper usage and synthesis.
4.	Voice	Statements, questions, indirect objects, object + object complement, negatives. (Advanced level) (Conversion)
5.	Reported Speech	Advanced level, continuous short paragraph consisting of three to four connected sentences.
6.	Uses of 'too' and 'enough'	Conversion and synthesis.
7.	Modal Auxiliaries	may, might, must, etc.
8.	Articles	Uses and omission of 'a', 'an', 'the'
9.	Prepositions	Indicating time, place and direction.
10.	Linking words/ discourse markers	Use of linking words in sentences and in larger units.
11.	Word formation	Changing word forms-nouns, verbs, adverbs, adjectives
12.	Infinitives, Gerunds and Participles	Usage and synthesis

### Weightage to be given at Std. XI and XII

The following weightage is to be given to the various aspects of the syllabus.

<b>1</b>	<b>Reading Skill (Textual and non-textual)</b>	<b>40%</b>
<b>2</b>	<b>Grammar</b>	<b>15%</b>
<b>3</b>	<b>Writing skill</b>	<b>25%</b>
<b>4</b>	<b>Oral test</b>	<b>20%</b>





## Environment Education

**T**he Environmental Education Syllabus for Higher Secondary Stage is based on the recommendations of the National Focus Group on Habitat and Learning and the National Curriculum Framework-2005 (NCF-2005).

Students pursue a common curriculum up to class X and would have developed a substantive understanding of the environmental issues from the perspective of both natural and social sciences.

At the higher secondary stage, that is, in classes XI and XII, they pursue many different academic streams drawn from languages, sciences, mathematics, social sciences, commerce, arts and physical education or vocational courses intended to help learners become skilful, [productive and efficient workers. It is important that the students further strengthen their knowledge and understanding of various aspects of environment and its problems and acquire attitudes and behaviours desirable for environmental improvement, safety management, and sustainable development.

By the time students enter class XI they will be mature enough to effectively participate in formulation, planning and implementation of projects and investigative studies pertaining to environmental problems.

In this course, the Environment is treated as an interconnected system of a variety of components including people, institutions, knowledge, artefacts, geosphere (atmosphere, hydrosphere, lithosphere), biosphere (ecosystems, biological populations), energy,

material, and information flows. An attempt has been made to illustrate the manifold environmental impacts that cascade through such interconnected systems and bring about continual processes of environmental change.

### Std. XI

#### 1. People and Environment

- 1.1 Humans as an integral part of the environment
- 1.2 Growth in human numbers over historical times
- 1.3 Migrations of people
- 1.4 Dispersion of human populations
- 1.5 Rural and urban settlements
- 1.6 Environment and health
- 1.7 Gender and environment

#### 2. Institutions (Social, Economic, Political, Legal, Cultural) and Environment

- 2.1 Evolution of technology, social, economic and political organisation, and growing resource demands
- 2.2 Impact of economic growth on environment
- 2.3 Inequitable economic growth, poverty and environment
- 2.4 India as a country where many different modes of resource co-exist
- 2.5 Open access, community controlled, private and state management of resources
- 2.6 Evolution of environmental concerns in different societies over the course of history



- 2.7 India's manifold traditions of conservation and sustainable use
- 2.8 Shift of environmental regulation from nature worship, customary law to Wildlife Act, Forest Conservation Act, Environmental Impact Assessment and Biological Diversity Act, etc.
- 2.9 Tools of environmental management, efficiency of resource use, sustaining harvests, pollution control
- 2.10 Concept of sustainable development
- 2.11 Concept of sustainable consumption
- 2.12 Ecological footprints
- 2.13. International economic regimes, forces of globalisation
- 2.14 International regimes of environmental regulation, Framework Convention on Climate Change, Law of Sea, Trans-boundary Movement of Hazardous Wastes, etc.
- 3. Knowledge, Science, Technology and Environment**
- 3.1 Growth of knowledge and human colonisation of new environments
- 3.2 Growth of knowledge and use of newer resources
- 3.3 Growth of knowledge, control of diseases and population growth
- 3.4 Implications of intellectual property rights for environment
- 3.5 Biotechnology, agriculture, health and environment
- 3.6 Intellectual property rights over living organisms
- 3.7 Traditional indigenous knowledge, its implication for environment
- 4. Man-made Artefacts and Environment**
- 4.1 Technological advances and ever accelerating pace of manufacture of artefacts
- 4.2 Impact of agriculture, animal husbandry, aquaculture
- 4.3 Impact of agrochemicals on environment
- 4.4 Impact of industry, mining, transport
- 4.5 Generation and provision of energy, water and other natural resources
- 4.6 Impact of synthetic chemicals
- 4.7 Life cycle analysis of: Newspaper, household consumables, house construction, transport, personal computer, cell phones, etc.
- Std. XII**
- 1. Exosphere (Atmosphere, Hydrosphere, Lithosphere)**
- 1.1 Sustainable and non-sustainable use of renewable and non-renewable natural resources, such as water and minerals
- 1.2 Changing patterns of land use and land cover
- 1.3 Management of gaseous, solid, liquid and hazardous wastes
- 1.4 Air, water (fresh and marine), soil pollution – sources and consequences
- 1.5 Noise and radiation pollution – sources and consequences
- 1.6 Ozone layer depletion and its effect
- 1.7 Greenhouse effect; global warming and climatic change and its effects
- 1.8 Disasters - natural (earthquakes, droughts, floods, cyclones, landslides) and man-made (technological and industrial); their impact on the environment; prevention, control and mitigation
- 1.9 Strategies for reducing pollution and improving the environment



- 2. Biosphere (Ecosystems and Biological Population)**
- 2.1 Sustainable and non-sustainable use of biological populations
- 2.2 Sustainable agriculture
- 2.3 Impact of Genetically Modified Organisms
- 2.4 Deforestation, overgrazing, over fishing
- 2.5 Concept and value of biodiversity
- 2.6 Components of biodiversity – genes, species, and ecosystems
- 2.7 Landscape ecology
- 2.8 India as a mega diversity nation
- 2.9 Economic potential of biodiversity
- 2.10 Loss of biodiversity - threatened, endangered and extinct species
- 2.11 Strategies for conservation of biodiversity – *in situ* and *ex situ*
- 2.12 Mitigating the people-wildlife conflict
- 3. Energy, Material, Information Flows**
- 3.1 Changing global patterns of energy and water consumption - from ancient to modern times
- 3.2 Energy and water consumption and quality of life
- 3.3 Rising demand for energy, and water, gap between demand and supply (Indian context)
- 3.4 Conventional and non-conventional energy sources - potential (Indian context) and limitations of each source, methods of harnessing and environmental consequences of their use with special reference to Indian context
- 3.5 Energy conservation - efficiency in production, transportation and utilisation of energy
- 3.6 Planning and management of energy; future sources of energy - hydrogen, alcohol, fuel cells
- 3.7 Enhancing efficiency of devices and optimising energy utilisation
- 3.8 Modern Information Communication Technology Revolution and environment.



According to the Supreme Court directive dated December 2010, NCERT is the nodal agency for the subject Environment Education. The syllabus designed and finalized and prepared by NCERT for std. 11 & 12th has to be followed by the state after adapting it according to their local specific needs.

Maharashtra state has adapted the syllabus of Environment Education prepared by NCERT and taking into consideration the local specificity the education material is prepared accordingly.

Separate text books have been prepared for std. 11 & 12th. Local specific examples have been included so as to make the book student friendly. Various activities have been included to make the book and overall Environment Education activity based. Journal assignments are also included to make the assessment process easy for students and teachers as well.

An attempt has been made to make Environment Education interesting as far as possible and in accordance with the local needs and national needs as well.





## Health and Physical Education

### Introduction

The process of Health and Physical Education requires the integration of psychomotor, cognitive and affective learning. As a part of this process, the physical education content area establishes the competencies and skills necessary for all students to be physically, mentally, socially and emotionally educated. Each individual possesses a Life Energy Curve, which cannot be rewritten but can be improved upon.

It is a fact that we have been successful in engineering activity out of modern life and we train children to be sedentary. Research strongly suggests that this life style would ultimately lead to the onset of hypokinetic diseases like premature death, blood pressure, diabetes, cardiac problems, etc. Stress is one more factor that is adversely affecting the lives of one and all. Hence intervention in the schooling age would be one of the keys to address this serious problem. There is a growing momentum for change, and so the proposed syllabus of Health and Physical Education has adopted a totally new approach. We now seek to bring reformative change. This challenge requires our approach to the subject with a whole new mind set. It focuses on encouraging the adoption of appropriate life long exercise behaviours in order to develop and maintain physical fitness for adequate functional capacity and health enhancement.

### The proposed syllabus has certain distinct characteristics:

1. It has been designed for the masses and not merely for selected few.
2. It is realistic, achievable, effective, accountable and objectively measurable.
3. At this stage it is developed on the basis of the curriculum of the primary stage.
4. It takes care of the Rural and Urban school settings, the availability of infrastructure, the time span of a period and the teacher: student ratio.
5. It proposes continuous comprehensive evaluation of students participation.
6. Self learning has also been incorporated in the syllabus in terms of assignments, observation, project work etc.
7. A new concept of deriving a Physical Fitness Index for each school has been suggested. Motivation in terms of Awards would also be considered for the Best School.

Wide range of options have been suggested, so as to take care of diversity in the State. The focus being Fitness, Fun, Excitement and Skill, along with the development of a positive attitude towards life long exercise behaviour which would ultimately lead to Wellness and the Health of the Nation.



## Objectives

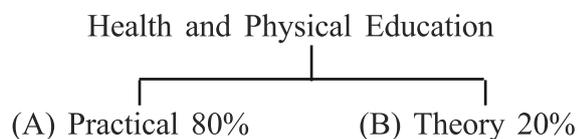
- 1) To promote physical fitness :
  - 1.1 Health Related Physical Fitness.
  - 1.2 Motor Related Physical Fitness.
- 2) To promote Sport Skill acquisition.
- 3) To promote life long Physical activity and Physical fitness:
  - 3.1 Skill in life time recreation.
  - 3.2 Skill in life time fitness
  - 3.3 Adoption and maintenance of creative of creative life style.
- 4) To promote cognitive learning:
  - 4.1 Games and sports rules.
  - 4.2 Scientific basis of movement and health.
  - 4.3 Physical fitness concepts and procedures.
  - 4.4 Drug/Dope abuse.
- 5) To inculcate desire to compete:
  - 5.1 with oneself.
  - 5.2 with others.
  - 5.3 for Excellence.
- 6) To promote Social development :
  - 6.1 Self concept
  - 6.2 Interpersonal skills.

- 3) applies movement concepts and principles of the learning and development of motor skills.
- 4) exhibits physically active lifestyle.
- 5) understands that physical activity provides opportunities for enjoyment, challenge, self-expression and social interaction.
- 6) demonstrates responsible personal and social behaviour in physical activity settings.
- 7) demonstrates understanding and respect for differences among people in physical activity settings. The performance level is to be improved from that of Std. IX and Std.X.

Intramurals should be conducted on manually.

## Framework of syllabus

The syllabus of Health and physical Education comprises of two parts – Theory and Practicals. The weightage given to these two parts and their sub units including evaluation are as follows. The syllabus for some units is the same as per the Std. IXth and Std.Xth Standards, however, the performance of the students has to be improved. The suggested framework is as under :



## Learning Outcomes

The syllabus in Health and Physical Education at this stage aims at realizing the following learning outcomes :

### A student –

- 1) achieves and maintains a health-enhancing level of physical fitness.
- 2) demonstrates competency in many movement forms and proficiency in few movement forms.



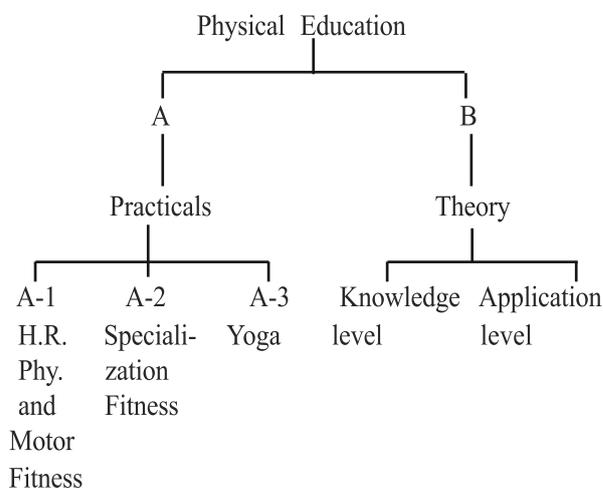
## Part : A

### Practicals

This part comprises of the following area for Std. XI<sup>th</sup> and XII<sup>th</sup>

S.No	Area	Std. 11th	Std. 12th
1)	Physical Fitness	20%	20%
2)	Athletics and Sports and games	70%	70%
3)	Yogic exercises	10%	10%

The syllabus for Stds. XI and XII consist of two Parts A and B, and its sub-parts. They can be schematically represented as follows :



This part consists of three sub parts –  
 A-1 Health Related Physical Fitness and Motor Fitness.  
 A-2 Athletics and Games and Sports.  
 A-3 Yoga.

#### A-1 Health Related Physical Fitness and Motor Fitness.

This is the most important part of the curriculum which is to be objectively

evaluated. Activities have been suggested for proficiency in these areas. These activities should be gradually increased in terms of **Frequency, Intensity, Time and Type of Exercise (FITT) principle.**

Development of Health Related Physical Fitness and Motor Fitness components is compulsory. School could adopt innovative and viable methods to improve these components.

#### Components of Health Related Physical Fitness (HRPF)

- A1.1 Cardio Vascular Fitness
- A1.2 Muscular Strength
- A1.3 Muscular Endurance
- A1.4 Flexibility
- A1.5 Body Composition

#### Activities suggested for developing Health Related Physical Fitness:

Points to be considered-

- A.1.1 Cardio Vascular Fitness**
  - i) Target Heart rate
  - ii) Warming up and cooling down
  - iii) Exercises- (a) Stretches (b) Upper body development, Lower body development, Mid section development
  - iv) Activities : Routines
    - (a) Exercises to music (b) Continuous movement activity.

- Compulsory** – Aerobics, Rope Jumping
- Minimum One** – Jogging, Walking, Interval Training, Circuit Training, Astronaut Drills, Staircase



Running, Running on the spot.

### A.1.2 Muscular Strength – Compulsory

- i) Dandas
- ii) Pushups Pullups - Boyes
- iii) Modified Pushups girls
- iv) Squats and Wide squats
- v) Rope climbing
- vi) Flexed Arm Hang/Hanging
- vii) Sitting Ball Throw (Basket Ball)
- viii) Lunges

### A.1.3 Muscular Endurance – Compulsory

- i) Sit ups – Bentknee, Curl ups, Reverse curls, Obliques
- ii) Pullups – Assisted
- iii) Knee sit wall

### A.1.4 Flexibility – Compulsory

- i) Suryanamaskar
- ii) Stretching Exercises

### A.1.5 Body Composition – Compulsory

Compulsory - Waist to Hip Ratio (W.H.R.)

- Body Mass Index (B:M.I)

Desirable - Measurement of Body fat with skinfold caliper

- Counselling with respect to Nutrition and Exercise.

### A.1.6 Components of Motor Fitness (MF)

- i) Speed
- ii) Agility
- iii) Power
- iv) Co-ordination
- v) Balance

#### A1.6.1 Suggested Activities for developing Motor Fitness (M.F.)

- a) Speed – 100 m. run, sprints, games, Frisbee games

b) Agility – (4 x 10) Shuttle run, games, Frisbee games

c) Power – Plyometrics games, Frisbee games.

d) Co-ordination – Skipping, Wall volley, Ball Drills, Frisbee games.

### Obstacle Course – Compulsory.

The obstacle course comprises of Stretching, vaulting, Agility run, Climbing, Hanging, Chinning, Crawling, Balancing etc. to develop fitness, Variations include – Run for time repetitions.

## A-2 Athletics

It is compulsory activity and has an essential and desirable component. The performance level has to improve from IXth to Xth Instrumentals should be conducted on Mass level.

	Essential	Desirable
Run	100 m.	200 m., 400
Relays	(4× 100)	4 × 400
Jumps	Long Jump	High Jump, Triple Jump
Throws	shot-put	Javelin, Discus

## A-3 Specialization

The students should select any one activity from the following:

- 1) Aerobics
- 2) Adventure Activities
- 3) Archery
- 4) Base ball
- 5) Badminton
- 6) Ball Badminton
- 7) Boxing
- 8) Basket ball
- 9) Cross-country



- 10) Cricket
- 11) Cycling
- 12) Football
- 13) Gymnastics
- 14) Hockey
- 15) Handball
- 16) Judo
- 17) Kho-Kho
- 18) Kabaddi
- 19) Karate
- 20) Tennis
- 21) Roller Skating
- 22) Soft ball
- 23) Swimming
- 24) Throw ball
- 25) Table Tennis
- 26) Volleyball
- 27) Water polo
- 28) Wt. Lifting
- 29) Wrestling
- 30) Athelatics
- 31) Yoga

**A.3.1 The syllabus for the above mentioned activities should be developed by the schools/colleges.**

A model outline for games, sports and yoga are given below :

**(A) Games (Specialization)**

- (1) Warming up – (a) general (b) Specific
- (2) Training for specific motor abilities:
  - (a) Free hand exercise
  - (b) Strength training (Isometric, Isotonic, other strength training methods)
  - (c) Endurance training (Continuous, fartlek, Interval etc.)

- (d) Speed training
- (e) Flexibility training
- (3) Technical/skill training:
  - (a) Refinement of skills with the help of exercises/drills
  - (b) Lead up activities
  - (c) Coaching of skills in game situation
- (4) Tactics and Strategies
  - (a) Individual tactics (Attack, Defence)
  - (b) Team tactics (Attack, Defence)
- (5) Specific tests for the activity.

**(B) Yoga (Specialization)**

The units to be taught are:

- (a) Asanas –Any two. Final position – 01 min.
- (b) Pranayama – any two
- (c) Kriyas – any two
- (d) Knowledge of the effects of Asanas
- (e) Chanting of Omkar, Mantras.
- (f) Relaxation and Concentration.

The course should emphasize, smooth transition, fluent movement and proper breathing techniques

**A-4 Yogic Exercises – (Compulsory)**

The yogic exercises are prescribed standardwise as given below – Asanas taught in the previous classes should be revised before introducing new asanas.

**XI**

- 1) Uttam mandukasana
- 2) Viparitkarni
- 3) Shalbhasana
- 4) Parvatasana with Padmasana
- 5) Kukkutasana
- 6) Simhasana
- 7) Shavasana

**XII**

- 1) Trikonasana
- 2) Bakasana
- 3) Uttanmandukasana
- 4) Parvatasana with padmasana
- 5) Mayurasana
- 6) Viparitkarni
- 7) Shavasana



### Kriyas

1. Kapalbhathi : Practice of following types of - Pranayams
2. Agnisar
  1. Anulom - Vilom
  2. Suryabhedhi
  3. Nauli
  4. Ujjai
  5. Tratak

6. Sitkari
7. Shitali -Pranayam
8. Bhramri
9. Bhramari –Pranayam

Yogic exercise program shall start with prayer and end with Shavasana and Omkar.



## Part : B

### Theory

This part comprises of theory which is related to health and physical education. This would help develop an attitude and awareness towards the various issues related to physical education and sports and to work towards understanding lifetime wellness.

Non-conventional methods of teaching which encourage self learning should be adopted and student participation is at its centre to the learning outcome of this part.

#### Std. XI

1. Principles of physical fitness.
2. Obesity & Management of Obesity
3. Effects of exercise on human body.
4. Prevention and first-aid for common sports injuries-sprain and strain.
5. Personality Development through sports.
6. Sports personalities.
7. Careers in Sports and physical education.
8. Nutrition of players
9. India in Olympic

#### Std. XII

Types of activities for fitness

1. Means of fitness development :
  - a) Aerobic activities – jogging, cycling, calisthenics, rhythmic exercises
  - b) Participation in games and sports
  - c) Circuit training
2. Obesity management
3. Bone injuries, joint injuries
4. Aesthetics in sports
5. Sports and culture
6. Sports for international understanding
7. Doping
8. Nutrition
9. Personal course in fitness (Lab Method) level 4- Calculation of fitness index players of the same game playing on different levels (District, State, National, International)



## Modern Indian Languages

### मराठी (०२)

#### प्रास्ताविक

वर्तमान युगास अनुरूप असे शिक्षण विद्यार्थ्यांना द्यावे, असा मराठी अभ्यास मंडळाचा विचार आहे. सध्या मराठी भाषेच्या उपयोजनाची विविध क्षेत्रे अस्तित्वात आहेत. उदा. शासकीय, अशासकीय कार्यालयातील कामकाज, उद्योग आणि व्यापार, जाहिरात संस्था, नभोवाणी, दूरचित्रवाणी, चित्रपट, प्रसारमाध्यमे, विज्ञान व तंत्रज्ञान, संगणक या विविध क्षेत्रात मराठी भाषेच्या उपयोजनाचे स्वरूप कसे आहे व कसे असावे, याचे मार्गदर्शन विद्यार्थ्यांना व्हावे, या दृष्टीने नव्या पाठ्यपुस्तकाची आवश्यकता आहे; असे मराठी अभ्यास मंडळाला वाटते.

मराठी विषयाचे अध्ययन केल्यानंतर विद्यार्थ्यांना उपजीविकेचे साधन मिळविण्याच्या दृष्टीने साह्य व्हावे, हेही उद्दिष्ट या अभ्यासक्रमाच्या मागे आहे. तसेच, या विद्यार्थ्यांचा मराठी साहित्याशी असलेला अनुबंधही कायम राहिल, असे वेचे अभ्यासक्रमासाठी निवडले जातील. उदा. विविध प्रकारचे पत्रव्यवहार, मुलाखती, माहितीवर आधारित लेख, वार्तापत्र, वृत्तसंकलन इ.

मराठीच्या विकासासाठी इतर भाषांतून ज्ञान-विज्ञानविषयक ग्रंथ मराठीत आणावेत, अशी शासनाची भूमिका आहे. त्यासाठी हा अभ्यासक्रम अत्यंत उपयुक्त आहे. यातून विद्यार्थ्यांना आवश्यक त्या परिभाषेची ओळख होईल. उदा. न्यायालयीन कामकाजाची भाषा, बँक व्यवहाराची भाषा. दैनंदिन व्यवहारात मराठीचा उपयोग वाढावा, अशी शासनाची भूमिका आहे. या अभ्यासक्रमामुळे सर्व व्यवहारांसाठी मराठी भाषेचा वापर करण्याची सवय विद्यार्थ्यांना व पर्यायाने समाजाला लागेल, अशी अभ्यास मंडळाची धारणा आहे.

#### उद्दिष्टे

१. भाषेच्या व्याकरणाचे महत्त्व ठसविणे.
२. भाषांतराची कौशल्ये रुजविणे.
३. प्रसारमाध्यमांसाठी लेखन-वाचन करण्याचे कौशल्य प्राप्त करून देणे.

४. परिसरातील व दैनंदिन प्रश्नांच्या सोडवणुकीसाठी भाषेचा उपयोग करण्याचा सराव करून घेणे.
५. संगणकावर मराठीचा उपयोग करण्यास प्रोत्साहन देणे.
६. सर्वत्र राजभाषा मराठीचा सन्मान करणारा नागरिक निर्माण करणे.

#### इयत्ता अकरावी

- १) व्याकरण
- २) भाषांतरकौशल्य
- ३) जाहिरातलेखन
- ४) सारांशलेखन
- ५) आकलन
- ६) इंटरनेटची ओळख (ई-पत्रव्यवहार, ब्लॉग (अनुदिनी), संकेतस्थळे (वेबसाइट्स), ऑनलाइन वर्तमानपत्रे, युनिकोड(भारतीय भाषा)
- ७) वृत्तपत्रीय लेखन (बातमी, स्तंभलेखन)
- ८) परिभाषेची व कोशवाङ्मयाची जुजबी ओळख
- ९) औपचारिक पत्रव्यवहार
- १०) परिसरातील प्रश्नांशी निगडित संवादकौशल्य (ग्रामपंचायत, जिल्हा परिषद, महानगरपालिका, राज्यशासन)
- ११) भाषेचे वाङ्मयीन उपयोजन व प्रातिनिधिक नमुने.

#### इयत्ता बारावी

- १) व्याकरण
- २) भाषांतरकौशल्य
- ३) वृत्तपत्रीय लेखन (लेख व अग्रलेख)
- ४) दूरचित्रवाणी व आकाशवाणीसाठी भाषेचे उपयोजन
- ५) मुलाखत तंत्र (तोंडी व लेखी)
- ६) संगणक -इंटरनेट, संकेतस्थळे, ओपन ऑफिस, फॉस (Free Open Source Software)
- ७) भाषेचे वाङ्मयीन उपयोजन व प्रातिनिधिक नमुने.
- ८) सृजनशील लेखन (Creative writing)



## हिंदी (०४)

महाराष्ट्र राज्य माध्यमिक व उच्च माध्यमिक शिक्षण मंडळ तथा एन.सी.एफ. २००५ के अनुसार उच्च माध्यमिक हिंदी पाठ्यक्रम निश्चित किया गया है।

उच्च माध्यमिक स्तर के छात्रों को सामाजिक समस्याओं का निराकरण करने के उपाय, वैज्ञानिक सोच, व्यावहारिक तथा व्यावसायिक कौशल, राजनीतिक, साहित्यिक तथा सामाजिक गतिविधियाँ आदि के प्रति सचेत करने की दृष्टि से पाठ्यक्रम में कुछ नूतन उद्भावनाएँ की गई हैं। छात्रों को जनसंचार माध्यमों से परिचित कराते हुए हिंदी भाषा के अनुप्रयोग के प्रति सचेत करने के लिए कुछ उपक्रम भी सुझाए गए हैं।

इस स्तर पर केवल हिंदी भाषा पढ़ाना उद्देश्य नहीं है बल्कि शील-संपन्न नागरिक निर्माण करने हेतु विविध वैयक्तिक, सामाजिक, राजनीतिक मूल्यों का परिचय कराना भी महत्वपूर्ण होता है अतः साहित्य तथा पाठों के माध्यम से मूल्य संस्कार का उद्देश्य सफल हो सकता है। प्रस्तुत स्तर के पाठ्यक्रम के उद्देश्य निम्नलिखित हैं।

- १) हिंदी भाषा की संरचना तथा व्याकरण के मूलतत्त्वों के ज्ञान को विस्तृत करना।
- २) हिंदी के शब्दभंडार की अभिवृद्धि तथा उसके अनुप्रयोग की योग्यता का विकास करना।
- ३) भाषा की मौखिक एवं लिखित अभिव्यक्ति में कुशलता प्राप्त करके छात्र की निजी स्वतंत्र शैली का विकास करना।
- ४) वाक् प्रतियोगिता, भाषण, कलामंच-संचालन, संवाद आदि से परिचित करना।
- ५) साहित्य पाठों के माध्यम से छात्रों में सौंदर्यबोध तथा कलात्मक बोध का विकास करना।
- ६) भारत की सांस्कृतिक विशेषताओं का परिचय देते हुए समता, राष्ट्रीयता, बंधुता, वैश्विक एकता आदि भावों का पोषण करना।
- ७) साहित्य की विविध विधाओं के माध्यम से संबंधित साहित्यकारों तथा उनकी विभिन्न शैलियों का परिचय देना। हिंदी साहित्य के इतिहास का स्थूल परिचय देना।

- ८) वैश्वीकीकरण के परिप्रेक्ष्य में अनूदित साहित्य का परिचय कराना। साथ ही छात्रों में अनुवाद की क्षमता विकसित करना।
- ९) राजभाषा के रूप में हिंदी के शासकीय तथा व्यावहारिक रूप का परिचय देना।
- १०) जनसंचार माध्यमों की भाषा के रूप में हिंदी की विविध प्रयुक्तियों का ज्ञान देना। सी.डी., डि.व्ही.डी., इंटरनेट पर प्रस्तुत पूरक साहित्य का परिचय देना।

### कक्षा ११वीं

१. गद्य : १२ पाठ : ८० पृष्ठ  
 कहानियाँ ७  
 निबंध २  
 एकांकी १  
 हास्य, व्यंग्य/संस्मरण -  
 विज्ञान/पर्यावरण/रेखाचित्र २  
 जीवनी आदि \_\_\_\_\_  
 १५
२. पद्य - १० कविताएँ/२५० तक पद्य पंक्तियाँ  
 मध्ययुगीन : ४ ३  
 आधुनिक : १० ७  
 \_\_\_\_\_  
 १४
३. पूरक पठन : कुल ७ पाठ हास्य-व्यंग्य रचनाएँ  
 वैज्ञानिक/औद्योगिक आदि ७  
 हास्य व्यंग्य रचनाएँ \_\_\_\_\_  
 ७
४. रचना विभाग -  
 निबंध - २०० शब्दों तक करना।  
 • चित्र वर्णन  
 • सारांश लेखन -  
 • पत्रलेखन • व्यावसायिक/कार्यालयीन पत्र  
 • साक्षात्कार/ भेंटवार्ता



● पारिभाषिक शब्दावली

कक्षा १२ वीं

\*अनुवाद

५. व्याकरण

- १) कालपरिवर्तन : सामान्य, पूर्ण, अपूर्ण
- २) वाक्यों के भेद : सरल, संयुक्त, मिश्र
- ३) अव्यय पहचानना : क्रियाविशेषण, संबंध-  
सूचक समुच्चय बोधक,  
विस्मयादि बोधक
- ४) मुहावरे  
वाक्य शुद्धीकरण = मात्रा, लिंग, वचन,  
कारक क्रिया  
सूचना के अनुसार काल परिवर्तन

६. संवाद कौशल

१. गद्य : १२ पाठ : ८० पृष्ठ

कहानियाँ	७	६
निबंध	४	२
हास्य-व्यंग्य	२	२
विज्ञान/पर्यावरण	१	२
संस्मरण/रेखाचित्र आदि	१५	१२

२. पद्य - १० पद्य पंक्तियाँ २५०

मध्ययुगीन	: ४
आर्वाचीन	: १०
	१४



३. पूरक पठन : कुल हिंदी विविधा पाठ - ६  
हिंदी विविधा - विविध विधाओंके ६ पाठ

४. रचना विभाग -

निबंध	-	२०० शब्दों तक
अपठित गद्य खंड का आकलन		
सारांशलेखन	-	
पत्रलेखन	-	व्यावसायिक / कार्यालयीन साक्षात्कार / भेंटवार्ता पारिभाषिक शब्दावली, वृत्तांतलेखन, विज्ञापन। अनुवाद / चित्रवर्णन

५. व्याकरण

- १) वाक्य भेद - सरल, संयुक्त, मिश्र
- २) कालपरिवर्तन : सामान्य, पूर्ण, अपूर्ण
- ३) वाक्य शुद्धीकरण, मात्रा, लिंग, वचन, कारक  
क्रिया
- ४) मुहावरे



## Gujarati (03)

### Introduction

Curriculum renewal is the continuous process as the needs and the aspirations of the society keep on changing. Even in this new millennium, some of the earlier and yet significant social concerns of our country have remained unchanged. But at the same time, there have arisen certain new concerns which need to be given prime importance.

Continuous contemplation, awareness and research are the prerequisites for making our education lively and relevant. Only then shall we be able to maintain the quality of education and to produce skilled and efficient citizens.

The curriculum gives paramount importance of the following points.

1. National identity for the fundamental social ethical cultural and spiritual heritage.
2. Need for strengthening unity and protecting cultural heritage.
3. Integrating curricular with locally relevant knowledge with a view to making them cohesive and coherent.
4. The new curricular offers suggestions to meet the challenges of globalization and the emergence of ICT (Information and communication Technology)
5. Linking education with basic life skills.
6. Value Education.
7. Coherence of knowledge emotions and creativity.
8. Yoga and aesthetic development.
9. Making curricular less content loaded.
10. Relating education with activity.

11. Introducing the upgraded National syllabus Keeping in mind the trend and challenges of 21<sup>st</sup> century steps to overcome the problems faced by then and for future development.

The three foundations of curriculum Appropriateness, Equality and Excellence have been taken into consideration. Moreover the element of flexibility is inherent in it. However, its success will be determined by the way in which educational objectives are realized at various levels. i.e. from policy making to curricular framework, syllabus, textbooks and teachers. And finally in the classroom, in this long chain the syllabus is an important link between the curricular framework the teaching materials and the teachers.

At the secondary level first language teaching aims at improving the communication skills, correctness in the usage of grammar and appropriate style of the learner, to use the language in real life situations-orally and in written form and developing reading comprehension at a reasonable speed. At the end of the secondary education, learner should be able to use the first language orally and in written form effectively and the second language in a generally acceptable manner.

All human beings use language to express their feelings, so it is a means of communication beside this, language is also a medium through which most of our knowledge is acquired. Language expresses our ideas, views, and other imaginations. With the language we celebrate our trend and tradition.



Development of language is ultimately stimulated by our cultural heritage and the needs of social development, but we would not overlook the reverse dependence either. Human society can not do without language as the most important, most perfect and universal means of communication, expression of thoughts and accumulation and means of expression. It is equally important to realize that languages are not discrete objects our theme almost frozen in time and space, both physical and mental.

The curriculum in Gujarati have been set to introduce the aims and to achieve the goal set by the Board. It enhances the basic language abilities like learning, speaking, reading, writing and thinking. For this purpose syllabus is prepared as per the age, and standard. The basic aim is to introduce “Linguistic Units” and to develop linguistic skills of the students.

Last but not the least it is hoped that this will cater to the needs of the present education systems for which it is formulated.

### **General Objectives :**

#### **To enable the students to**

1. to develop skill to enrich vocabulary and its multiple meanings.
2. to acquire ability to understand literary language.
3. to develop creative and imaginative use of Gujarati language.
4. to create interest in appreciation of linguistics.
5. to acquire ability to understand text content criticize, compare with other literary works.

### **Specific Objectives :**

#### **To enable the students to**

1. to develop awareness of national integration and patriotism.
2. to develop positive attitude and confidence and to arouse noble sentiments through the language.
3. to develop awareness of unity in diversity.
4. to respect India’s common cultural heritage.
5. to respect human rights and Socio-cultural values.
6. to develop sense of ‘national Identity’
7. to have the knowledge of right to education and right to Information.
8. develop competency of listening, speaking, reading, writing and conversation.
9. acquire skill in reading silently, storybooks, newspapers, magazines and other prescribed texts with proper speed and understanding.
10. motivate students to use dictionaries, library and other reference books.
11. develop ability to narrate experiences, participate, in debates and discussions and express views in correct language.
12. appreciate the beauty of the language.
13. To acquire the ability to make use of computer,internet, on line education, etc.
14. To develop sense of gender equality
15. To acquire scientific temper and rational behaviour
16. To develop the ability to understand the subject in tension free environment.



**Std XI**

1. **PROSE :**  
About 80 pages.  
[Essay, Extracts from autobiographies, extracts from novel, short stories, one-act-plays, travelogues, humorous articles, critique. (one lesson for self-study)]
2. **POETRY :**  
About 250 lines. (Ancient and Modern Poetry)  
[Forms of Medieval literature- pada, akhyan, chhappa, garbi, folk-song, khand-kavya, sonnet, gazzal, song. (one poem for self-study)]
3. **RAPID READING :**  
50 pages various forms of Gujarati Literature
4. **GRAMMAR :**  
Similar words, opposite words, make adjective word changing the tenses, meaning of idioms.
5. **COMPOSITION :**
  - a) Essays : Descriptive, Reflective, Imaginative, and an Autobiography.
  - b) Précis
  - c) Comprehension
6. **COMMUNICATION SKILL :**
  - a) Letter writing
  - b) Report writing
  - c) Invitations
  - d) Programme
7. **ORAL/CONVERSATION SKILL :**
  - a) Listening
  - b) Narration
  - c) Loud reading
  - d) Conversation.

**Std XII**

1. **PROSE :**  
About 80 pages.  
[Essay, Extracts from autobiographies, extracts from novel, short stories, one-act-plays, biography, travelogue and critique.]
2. **POETRY :**  
About 250 lines. (Ancient and Modern Poetry)  
(one lesson for self-study)  
[Forms of Medieval literature- pada, Aakhyan, chhappa, garbi, folk-song, khand-kavya, sonnet, gazzal, song, muktak, haiku]
3. **RAPID READING :**  
50 pages various forms of Gujarati Literature.
4. **GRAMMAR :**  
Similar words, opposite words, make adjective changing the tenses, Meaning of idioms and their use.
5. **COMPOSITION :**
  - a) Essays: Descriptive, Reflective, Imaginative, and an Autobiography.
  - b) Précis
  - c) Comprehension
6. **COMMUNICATION SKILL :**
  - a) Letter writing
  - b) Report writing
  - c) Invitations
  - d) Programme
7. **ORAL/CONVERSATION SKILL :**
  - a) Listening
  - b) Narration
  - c) Loud reading
  - d) Conversation



## Urdu (05)

### Introduction

Urdu is a modern Indian Language. A mere glimpse of the history of the origin and development of the Urdu language suggests that, during the course of its development Urdu has been influenced and enriched from Arabic, Persian, Turkish, Khadi Boli, and Punjabi, etc.

As far as the early development of Urdu language is concerned the credit goes to southern part of India including Maharashtra. Marathi saints like Namdeo and Eknath composed poetry not only in Marathi but also in mixed idiom. This was later developed into Deccani Urdu by other poets and prose writers of south India. Therefore, Urdu is also a heritage of Maharashtra.

Through the course of its evaluation and development Urdu has assimilated all thoughts and enriched by the poets and writers belonging to all caste and religion, and it is therefore, that, the Urdu is regarded as true representative of “Ganga-Jamuni Tahzeeb”.

Besides, Urdu Language has played instrumental role in the freedom struggle of India. The slogan of “Inqlab Zindabad” Which infused fresh soul is the body of freedom fighters, belongs to Urdu.

It is therefore, that, the rich literary treasure of Urdu language which is a mixture of different thoughts, culture and religion are not only to be preserved but to be spread. Because, the true secularism sun which the Urdu language has produced and maintained is much needed for the Secular India and hence all such thoughts which are relevant to the present times are to be included in the syllabus

and taught at secondary and Higher Secondary levels.

### General Objectives

#### To enable the students to

1. acquire ability to gain mastery over the use of correct Urdu language
2. develop skill of the usage of correct idioms, phrases and proverbs in speech and writing.
3. develop skill in writing letters, essays and dialogues and stories.
4. develop the skill of literary criticism through group discussions with eminent poets and writers.
5. develop skill of creative and imaginative language.
6. develop skill of translation from regional, and national languages into Urdu and vice-versa.
7. develop skills to express ideas , emotions and experiences after going through literary forms.
8. understand difference between literary language and the language of day to day conversation.
9. acquire communication skills in Urdu useful in real life situation and enrich vocabulary.
10. develop reference skills and inculcate self-study habits.
11. cultivate a broad human and cultural outlook.



### Specific Objectives : 'A'

#### To enable students to

1. develop ability to narrate experiences, participation in debates and group discussions and express their views and ideas in correct Urdu language and in logical sequence.
2. develop common cultural outlook through literature.
3. develop awareness of national integration and patriotism through Urdu language.
4. develop awareness of gender equality.
5. develop awareness of adverse effects of alcohol.
6. acquire ability to make use of computer, internet, on-line education, etc.
7. have through knowledge of right of education, right to information.
8. develop the activity to understand the subject in tension free atmosphere.

### Specific Objectives : 'B'

#### To enable the students to

1. acquire fair knowledge of basic structure of Urdu language and elements of grammar included in the syllabus.
2. develop the ability to express ideas from the text in their own language with the help of the content.
3. develop interest in reading literary passages and appreciating the beauty of the language and the ideas contained therein.
4. cultivate broad human and cultural outlook through the text.
5. develop the aesthetic sense to appreciate imaginative and creative pieces of literature.
6. enjoy and appreciate the rhythmic beauty of poems, understand read out or recorded stories, narrations, descriptions, pieces of

information.

7. listen with comprehension to lectures, talks, conversations, news-bulletins and interviews.
8. speak with acceptable pronunciation and play variety of roles in different contexts.
9. improve the speed of reading and skim as well as scan the text.
10. understand and appreciate features of literary style.
11. write correctly and neatly using appropriate vocabulary and grammar.

## Std. XI

### Detail Study

#### Prose :

A text book of about 80 pages of literary and non-literary (informative) texts passages (excluding notes, illustration, tasks etc)

#### Poetry :

Approximately 250 lines, Ghazals, Poems, Rubaiyyat, Mathnavi, Marsia Quaseeda and Kita.

#### Rapid Reading :

A rapid reading of literary and non literary pieces about 40 pages

#### Composition :

Atleast 10 exercises are expected to be written by the pupils as essays of reflective and descriptive nature. Sufficient practice in précis writing and comprehension, translation from English passages into Urdu, letters of appreciation on special occasions, personal letters and request letters to M.S.E.B., Municipal corporation etc.

#### Grammar :

- i. Revision of the grammar learned up to Std. X like tense.  
Parts of Speech, Similie metaphor etc.



- Kinds of sentences, Past Perfect continuous, Present Perfect tense etc.
- ii. Type of sentences : Simple, Compound, Complex
  - iii. Word formation (Derive) and compound with their arising out of the text.

#### **Figures of speech :**

1. Revision of the figures of speech in earlier classes
2. Tajahul-e-Aare faana- Miratu Nazeer.
3. Prosody.
4. Taqtee, mutquarib-Hajaz  
(saalim, Gair Saalim)

#### **Oral Skills**

### **Std. XII**

#### **Detail Study**

##### **Prose :**

A text book of about 80 pages of literary and non-literary pieces.

(excluding introductory notes, glossary)

##### **Poetry :**

Approximately 250 lines, Ghazals, Poems, Rubaiyyat, Mathnavi, Marsia Quaseeda and Qita.

##### **Rapid Reading :**

A rapid reading of travelogues about 40 lines.

##### **Composition :**

Atleast 10 exercises are expected to be written by the pupils on essays of reflective and descriptive nature. Sufficient practice in précis writing and comprehension and translation from English passages into Urdu is essential. Personal letters condolence letters, letters to editors of literary magazine and news papers.

##### **Grammar :**

1. Revision of the grammar learned up to Std. XI like tense.

2. Parts of Speech, Smilie, Metaphor etc.
3. Kinds of Tenses. Past Perfect continuous, Present Perfect tense etc.
4. Kind of sentences, Simple, Compound, Complex
5. Word formation (Derivatives and compounds with their prefixes and Suffixes arising out of the text)
6. Phrases, Idiom, Proverb arising out of the text.  
Word formation (Derive) and compound with their arising out of the text.

#### **Figures of speech**

1. Revision of the figures of Speech studied in earlier classes
2. Tajahul-e-Aare faana- Miratu Nazeer.
3. Prosody.
4. Revision of the portion studied in std XI
5. Taqtee, mutquarib-Hajaz  
(saalim, Gair Saalim)

#### **Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Kannada (06)

### Introduction

In our country each state has its own culture. The language exhibit the essence of such cultures. By learning different languages, we indirectly promote National integration while formulating the syllabus for these languages much attention has been given to visualize the ethical aspect of value based education. It should mould the students into responsible citizens, by imbibing the moral and cultural values of a particular state. The students should be able to grow themselves as responsible citizens without any partisan attitude.

The syllabuses for these languages are prepared keeping in mind the syllabus for Std. I to X and also the curriculum followed by the concerned states.

### Objectives

#### To enable pupils to

1. enrich their vocabulary.
2. enhance their abilities in listening, reading, writing, speaking and communication.
3. develop life skills.
4. understand the importance of conservation of resources, culture, heritage, health and hygiene.
5. get awareness about environmental studies
6. develop among the students, the feeling and respect for love of nation, unity and national harmony, scientific vision, work culture, equality, enterprise education, the basic values of life.

### Std. XI

1. **Prose** :  
A text book of about 80 pages excluding introductions, notes and exercises, etc. of which one lesson will be for self-study
2. **Poetry** :  
250 lines including modern and medieval poetries.
3. **Rapid Reading** :  
A rapid reading section of about 50 pages.
4. **Grammar**  
Revision of the portion taught in the previous classes.
  - a) Sandhi- Swara sandhi, Vyanjan Sandhi.
  - b) Samas - Ari, Gamaka, Kriya.
  - c) Amshagana- Sangatya, Tripadi.
  - d) Pras- yati.
  - e) Idioms and proverbs as arising out of Text.
5. **Composition** :
  - a) Essay of 250 words each creative, autobiographical, narrative, descriptive.
  - b) Précis – writing : Passage around 150 words.
  - c) Comprehension of an unseen prose (150 words) or poetry (20 lines)
6. **Communication Skill**
  - a) Letter writing
  - b) Preparation of invitation cards
  - c) Report writing
  - d) Programme planning
7. **Communication Skills (Oral)**



**Std. XII**

1. **Prose** :  
A text book of about 80 pages (excluding introductions, notes and exercises etc.)
  2. **Poetry** :  
250 lines (80 lines from ancient and medieval poetry and the rest from modern poetry)
  3. **Rapid Reading** :  
A rapid reading section of about 50 pages.
  4. **Grammar** :  
Revision of the portion taught in the previous classes.
    - a) Alankar - Rupak, Upama, Drustanta. Arthantarnyas.
    - b) Matra Gana - Shatpadi, Tripadi.
    - c) Sarala Ragale, Austa Shatpadi.
    - d) Samas - Tatpurush, Karmadharaya, Dwigu, Dwandva, Amshi, Bhahuvrihi, Gamaka, Ari.
    - e) The Study of roop Nishpatti.
  5. **Composition** :
    - a) Essay of about 250 words.
- Creative, Reflective, Narrative, Autobiographical.
- b) Précis – writing (150 words)
  - c) Comprehension of an unseen prose passage around 150 words or Poetry around 20 lines.
6. **Communication skill (writing)**
    - a) Letter writing
    - b) Advertisement preparation
    - c) Report writing
    - d) Programme planning
  7. **Communication Skills (Oral).**  
**Oral Skills**  
Listening activities : develop the sub-skills of listening, provide practice in ear-training.  
Loud-reading : following the features of loud reading, provide practice in loud-reading.  
Speaking : creating confidence in speaking. Using narration and description.  
Conversation : ability to converse confidently and effectively, provide practice in conversation.  
Formal testing in oral skills will be administered.



## Tamil (09)

### Introduction

In our country each state has its own culture. The language exhibit the essence of such cultures. By learning different languages, we indirectly promote National integration while formulating the syllabus for these languages much attention has been given to visualize the ethical aspect of value based education. It should mould the students into responsible citizens, by imbibing the moral and cultural values of a particular state. The students should be able to grow themselves as responsible citizens without any partisan attitude.

The syllabus for these languages are prepared keeping in mind the syllabus for std. I to X and also the curriculum followed by the concerned states.

#### Objectives :

##### To enable pupils to –

1. enrich their vocabulary.
2. enhance their abilities in listening, reading, writing, speaking and communication.
3. develop life skills.
4. understand the importance of conservation of resources, culture, heritage, health and hygiene.
5. get awareness about environmental studies,
6. develop among the students, the feeling and respect for love of nation, unity and national harmony, scientific vision, work culture, equality, enterprise education, the basic values of life.

### Std. XI

1. **Prose** :  
A text book of about 80 pages excluding introductions, notes and exercises etc. of which one lesson will be for self study
2. **Poetry** :  
250 lines including modern and medieval poetries.
3. **Rapid Reading** :  
A rapid reading section of about 50 pages.
4. **Grammar**  
Revision of the portion taught in the previous classes.
  1. Voice, Tenses, Gender, Number, Clause.
  2. Agupeyar and its kinds.
  3. Idioms, Proverbs arising out of text.
  4. Kinds of sentences and analysis.
  5. Recognition of derivation of words arising out of Text.
5. **Composition** :
  - a) Essay of 250 words each. creative, autobiographical, narrative, descriptive.
  - b) Précis – writing (150 words)
  - c) Comprehension of an unseen prose (150 words) or poetry (20 lines)
6. **Communication skill**
  - a) Letter writing
  - b) Preparation of invitation cards
  - c) Report writing
  - d) Programme planning
7. **Communication Skills (Oral)**



**Std. XII**1. **Prose :**

A text book of about 80 pages (excluding introductions, notes and exercises etc.)

2. **Poetry:**

250 lines (80 lines from ancient and medieval poetry and the rest from modern poetry)

3. **Rapid Reading :**

A rapid reading section of about 50 pages.

4. **Grammar :**

Revisions of the portion taught in the previous classes.

1. Thanvinai, Piravinai, Assartive and exclamatory sentences.
2. Vetrumaigal
3. Idioms and Proverbs arising out of Text Book.
4. Punarchi : Thontral, thirithal, Keduthal.
5. Prosody: Venba, asiriyappa.

5. **Composition :**

- a) Essay of about 250 words.  
Creative, Reflective, Narrative, Autobiographical.

- b) Précis – writing Prose passage around 150 words.

- c) Comprehension of an unseen Prose passage around 150 words or Poetry around 20 lines.

6. **Communication skill (writing).**

- a) Letter writing.
- b) Advertisement preparation.
- c) Report writing.
- d) Programme planning.

7. **Communication Skills (Oral).****Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Telugu (10)

### Introduction

In our country each state has its own culture. The language exhibit the essence of such cultures. By learning different languages, we indirectly promote National integration while formulating the syllabus for these languages much attention has been given to visualize the ethical aspect of value based education. It should mould the students into responsible citizens, by imbibing the moral and cultural values of a particular state. The students should be able to grow themselves as responsible citizens without any partisan attitude.

The syllabus for these languages is prepared keeping in mind the syllabus for Std. I to X and also the curriculum followed by the concerned states.

#### Objectives :

##### To enable pupils to –

1. enrich their vocabulary.
2. enhance their abilities in listening, reading, writing, speaking and communication.
3. develop life skills.
4. understand the importance of conservation of resources, culture, heritage, health and hygiene.
5. get awareness about environmental studies,
6. develop among the students, the feeling and respect for love of nation, unity and national harmony, scientific vision, work culture, equality, enterprise education, the basic values of life.

### Std. XI

1. **Prose** :  
A text book of about 80 pages excluding introductions, notes and exercises etc. of which one lesson will be for self study
2. **Poetry**:  
250 lines including modern and medieval poetries.
3. **Rapid Reading**:  
A rapid reading section of about 50 pages.
4. **Grammar**  
Revision of the portion taught in the previous classes.
  1. Vaakyamu mariyu vaakyaangamulu, Vaakyarakamulu.
  2. Sandhi –
    - i) Telugu : Akaara, Ekaara, ukara, Sandhulu and yadaagama Sandhi.
    - ii) Sanskruta Sandhulu: Savarna Deerga Sandhi, Guna Sandhi.
  3. Samasamulu :
    - i) Karma Dharaya -Visheshana purvapada, Uttarapada, Dwigu, Rupaka
    - ii) Tathpurusha - Dwitiya, Thrutiya, Chatrutli, Panchami, Shashti, Saptami.
  4. Jateeyamulu, Samethalu vani prayogamu.
  5. Alankaramulu :
    - i) Artha-Upama, Athishayoklti, Uthpreksha.
    - ii) Shabda- Urutyanuprasa, Chekaanuprasa.
5. **Composition** :
  - a) Essay of 250 words each.



creative, autobiographical,  
narrative, descriptive.

- b) Précis – writing (Prose passage around 150 words)
  - c) Comprehension of an unseen prose (150 words) or poetry (20 lines)
6. **Communication skill**
- a) Letter writing
  - b) Preparation of invitation cards
  - c) Report writing
  - d) Programme planning
7. **Communication Skills (Oral)**

3. Samasamulu : Dwandwa, Bahurvihi, Nangtatpurusha, Avyayeebhava.
4. Chandassu : Jathalu, Upajathulu.
5. Alankaramulu : Swabhavokti, Rupaka, Dhrushtantha, Lataanuprasa.

5. **Composition:**

- a) Essay of about 250 words. Creative, Reflective, Narrative, Autobiographical.
- b) Précis – writing (150 words)
- c) Comprehension of an unseen prose passage around 150 words or poetry around 20 lines.

## Std. XII

1. **Prose :**  
A text book of about 80 pages (excluding introductions, notes and exercises etc.)
2. **Poetry :**  
250 lines (80 lines from ancient and medieval poetry and the rest from modern poetry)
3. **Rapid Reading :**  
A rapid reading section of about 50 pages.
4. **Grammar:**  
Revision of the portion taught in the previous classes.
  1. Vaakya Bhedamulu : Samanya, Samslista, Samyukta.
  2. Telugu Sandhi : \
    - i) Thrika Sandhi, Sarla Desha Sandhi,
    - ii) Samskruta Sandhi : Yanaa Desha, Vruddi, Anunaasika.

6. **Communication skill (writing).**

- a) Letter writing.
- b) Advertisement preparation.
- c) Report writing.
- d) Programme planning.

7. **Communication Skills (Oral).**

**Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Introduction



## Malayalam (08)

In our country each state has its own culture. The language exhibit the essence of such cultures. By learning different languages, we indirectly promote National integration while formulating the syllabus for these languages much attention has been given to visualize the ethical aspect of value based education. It should mould the students into responsible citizens, by imbibing the moral and cultural values of a particular state. The students should be able to grow themselves as responsible citizens without any partisan attitude.

The syllabus for these languages is prepared keeping in mind the syllabus for std. I to X and also the curriculum followed by the concerned states.

### Objectives :

#### To enable pupils to –

1. enrich their vocabulary.
2. enhance their abilities in listening, reading, writing, speaking and communication.
3. develop life skills.
4. understand the importance of conservation of resources, culture, heritage, health and hygiene.
6. get awareness about environmental studies,
7. develop among the students, the feeling and respect for love of nation, unity and national harmony, scientific vision, work culture, equality, enterprise education, the basic values of life.

Std. XI

1. **Prose** :  
A text book of about 80 pages excluding introductions, notes and exercises etc. of which one lesson will be for self study
2. **Poetry** :  
250 lines including modern and medieval poetries.
3. **Rapid Reading**: A rapid reading section of about 50 pages.
4. **Grammar**  
Revision of the portion taught in the previous classes.
  1. Kinds of Sentences.
  2. Samasam : Dwandwa and bahurvrihi.
  3. Sandhi : Lopasandhi, Athesha Sandhi Dwitva Sandhi.
  4. Shabdalkaram : Anuprasam, Antyaprasam.
  5. Arthalankaram : Upama, Utpreksha, Rupaka.
5. **Composition**
  1. Essay of 250 words each creative, autobiographical, narrative, descriptive.
  2. Précis – writing (150 words)
  3. Comprehension of an unseen prose (150 words) or poetry (20 lines)
6. **Communication skill**
  - a) Letter writing
  - b) Preparation of invitation cards
  - c) Report writing
  - d) Programme planning
7. **Communication Skills (Oral)**

Std. XII



1. **Prose** :  
A text book of about 80 pages (excluding introductions, notes and exercises etc.)
2. **Poetry**:  
250 lines (80 lines from ancient and medieval poetry and the rest from modern poetry)
3. **Rapid Reading**: A rapid reading section of about 50 pages.
4. **Grammar**:  
Revision of the portion taught in the previous classes.
  1. Change of Voice and transformation of Sentences.
  2. Idioms and Proverbs arising out of the text book.
  3. Vrutham: Manikanchi, Druthakakali, Nathonnatha.
  4. Sandhi : Atheshasndhi, Agama Sandhi, Lopasandhi, Duitva Sandhi.
  5. Alankaram :
    1. Shabdalankaram, Dwitiyakshara prasamv, Adhiprasam, yamakam.
    2. Arthalankaram : Vasavokthi, Shleshokti.
5. **Composition**:
  - a. Essay of about 250 words.  
Creative, Reflective, Narrative, Autobiographical.
  - b. Précis – writing (150 words)
  - c. Comprehension of an unseen prose passage around 150 words or poetry around 20 lines.
6. **Communication skill (writing)**.
  - a) Letter writing.
  - b) Advertisement preparation.
  - c) Report writing.
  - d) Programme planning.
7. **Communication Skills (Oral)**.  
**Oral Skills**  
Listening activities : develop the sub-skills of listening, provide practice in ear-training.  
Loud-reading : following the features of loud reading, provide practice in loud-reading.  
Speaking : creating confidence in speaking. Using narration and description.  
Conversation : ability to converse confidently and effectively, provide practice in conversation.  
Formal testing in oral skills will be administered.



## Introduction



## Sindhi (07)

Sindhi, Bengali and Punjabi are the languages, which are rich in literature. These are the descendants of Indo-aryan family of languages. In their own states, these languages are taught and learnt while Sindhi is being taught in Maharashtra, Gujrat, Rajasthan and Delhi; as Sindhis are scattered in India, after Partition. However, it always happens that people from other states migrate for various reasons also like industrial development, transfer in services, search of job etc. In such situations, they have to learn the state language in order to communicate with the people. At the same time, they are keen on keeping in touch their mother tongue and the parents want their children to learn the same. The Maharashtra State Board of Secondary and Higher Secondary Education has provided the necessary facility to learn such languages.

The syllabi of Sindhi, Bengali and Punjabi are presented in continuation of the syllabi of Secondary level in order to cope with the higher studies of these languages.

### Objectives –

#### To enable the students to –

1. acquire the ability to speak the language properly through correct pronunciation, intonation, etc.
2. Develop the ability comprehended the language effectively
3. Encourage to read newspapers, periodicals and journals in the language in order to develop reporting skill and other skills.
4. Develop interest in the language.

5. Create interest among students to read regularly the daily newspapers, periodicals, etc.
6. Be able to use various semantic variations in the use of various words, phrases and idioms in varying circumstances.
7. Develop the skill of translating in Sindhi/Bengali from other languages without distorting the original theme of ruining the literary flavour.

### Std. XI & XII

1. **Prose** –  
A Text book of about 80 pages (Exclusive of notes and exercises etc.
2. **Poetry** -  
About 250 lines (Including classical and present age poetry)
3. **Rapid Reading**-  
About 50 pages (Any one branch of prose writing)
4. **Composition** – a) Eassy    b) Precis  
c) Comprehension
5. **Communication skill** – a) Letter  
b) Report writing
6. Oral/Conversation skill

### Std. XI

7. **Grammar**
  1. Tenses – simple and compound
  2. Indeclinables
  3. Change of Gender
  4. Word Derivation
  5. Analysis of sentences
  6. Transformation of sentences



7. Idioms, proverbs, phrases as arising out of texts
8. Figures of speech
9. Punctuation
10. compound verbs
11. Somas
12. Synonyms/Antonyms
13. Upasarga
14. sindhi-vowels and consonants
15. Correction of sentences.

### **Std. XII**

### **8. Grammar**

1. Tenses-simple and compound
2. Indeclinable
3. Change of Gender
4. Word Derivation
5. Analysis of sentences
6. Transformation of sentences
7. Idioms, Proverbs, Phrases as arising out of texts
8. Figures of speech
9. Punctuation
10. compound verbs,
11. somas
12. Synonyms/Antonyms
13. Upasarga
14. Sindhi-vowels and consonants
15. Correction of sentences
16. Comprehension and expansion of sentences

### **Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## **I**ntroduction



## Bengali (12)

Sindhi, Bengali and Punjabi are the languages, which are rich in their literature. These are the decendent of Indo Aryan family of languages. In their own state the language is taught and learnt. However, it always happens that people from other states come to Maharashtra for their own reason, like industrial development, transfer in services, in search of job etc. In such situations they have to learn the state language in order to mix with the people. At the same time, they are keeping in touch their mother-tongue and the parents want their children to learn the same. The Maharashtra State Board of Secondary and Higher Secondary Education have provided the facility necessary to learn such languages. The syllabi of Sindhi, Bengali and Punjabi are presented in continuation of the syllabi of Secondary Level in order to cope with the higher studies of these languages.

### Objective

#### To enable students to

1. Acquire the ability to speak the language properly through correct pronunciation, intonation, etc.
2. Develop the ability to comprehend the language effectively.
3. Encourage to read newspapers, periodicals and journals in the language in order to develop reporting skill and other skills
4. Develop interest in the language.
5. Create interest among students to read

regularly the daily newspapers, periodicals, etc.

6. Be able to use various semantic variations in the use of various words, phrases and idioms in varying circumstances.
7. Develop the skill of translating in Bengali/ Sindhi from other languages without distorting the original theme or running the literary flavour.

### Std. XI

1. **Prose :**  
A Textbook of about 80 pages (Exclusive of notes and exercises, etc.)
2. **Poetry :**  
About 250 lines (Including classical and present age poetry)
3. **Rapid Reading :**  
About 30 pages (any one branch of prose writing)
4. **Composition :**
5. **Communication Skill**
6. **Oral/Conversation Skill**

### Std. XI

#### Name of the Books

Uccha Madhyamik Pathsachayan (prose) 'K'

#### Published by

Paschim Bang. Uccha Madhyamik Siksaka sansad June- 2005

1. **Prose :** 80 pages
  1. Sitar Vanbas
  2. Godar katha
  3. Taila





4. Shabderashirbad shabder Abhisap
5. Manabtantra
6. Shilpi
- 5. Name of the Books -**  
Uccha madhyamik Pathsanchayan (K)  
Kavita O Natak  
**Kabita (Poetry) Natak (Drama)**
  1. Attma Bilap                      1. Karna Kunti Sambad
  2. Ora kaj kore                    2. Jhashir Ranir Shesh Juddha
  3. Nabannya
  4. Amar koifiyat
  5. Barnmala, amardukkhini Barnmala
  6. Rasta karo ekar nay
- \* **Rapid Reading**
- 6. Name of the books :**  
Uccha Madhyamik Pathsanchayan Choto Galpo O prabad Prabacan-Bagdhara.
  1. Shripati shamanta
  2. Adab
  3. Ekti Tulshi Gacher Kahini
- 4. Grammar and Composition :**
  1. Ek Kathay Prakash (One word)
  2. Idioms Proverbs and Phrases from text book
  3. Bakhya Paribartan
  4. Alankar
  5. Samas
  6. Sandhi
  7. Antonyms/Synonyms
- 5. Composition:**
  1. Essay writing - Nibandh lekha
  2. Comprehension - Bodh Pariksan Kara
  3. Translation - Anubad Kara
  4. Letter Writing- Patra leha Business, Personal-N-Official
  5. Bhad- Samprasaran
- \* **Recommended Books on Bengali**

### Grammar-N-Composition

1. Adhunik Bangla Vyakaran - by Jagdish Chandra Ghosh
2. Bhasha Vyakaran - by Dr. Suniti Chattarjee
3. Bangla Vyakaran - by Sukumar Sen
4. Madhyamik bangle Vyakaran - by Dr. Robin Gupta.
5. Best collection on Bangla Vyakaran N Composition by Mr. M. S. Mallick Sir (BOS)  
(Rajiv Gandhi High School & Jr. Collage, Bengali Camp, Chandrapur (M.S))

**Note -** All Text Books-N-Grammar are available at -

1. M/s Debashree Book Depot,  
C/o Mr. M. S. Mallick Sir, (Rajiv Gandhi High School & Jr. Collage, Bengali Camp, Chandrapur, (M.S.) 442401  
Ph. 07172-261925  
Cell Phone - 9422837698  
9021581944
2. Above Recommended books are also available at any Book depot, collage Street, Kolkata, West Bengal, India.

### Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Punjabi (11)

### Std. XI

#### Detailed Study

#### 1. Prose :

##### Name of the Text Book: -

“Akhin-Dehthi-Dunian. Edition-2010”

##### Published by :

Punjab School Education Board, Sahibjada  
Ajit Singh Nagar, Chandigarh.

#### Lesson to be studied :

Lesson	Writer
1. Mathura Atey reengeeli Bridge-Bhumi	1. Giani hari Singh Dard
2. London Atey London they - Loog	2. Lal Singh Kamla Akali
3. Roos-de-Sardi	3. Sohan Singh Josh
4. Janglan-de-Vaseek	4. Principal Sarmukh Singh Amol
5. Raggi-Pujji-Mati	5. balraj Sawhney
6. Kalakaran-di-Basti	6. Balwant Gargi
7. Ghaggar bhagwan- De-Kambh-Te	7. Dr. Sadhu Singh hamdard
8. England-Atey-Bharat	8. Santokh Singh Dhir

#### 2. Poetry :

##### Name of the Text :

“PUNJABI-KAV EDITION-2009”

##### Published by :

Punjab School Education Board,  
Sahibjada Ajit Singh nagar, Mohali,  
Chandigarh.

#### POETS TO BE STUDIED :

##### Lesson No.3.-Sufi Kavi :

- (i) Sheikh Farid
- (ii) Shah Hussain
- (iii) Bulley Shah
- (iv) Hassam Shah

##### Lesson No.4.-Gurmat-Kavi :

- (i) Guru Nanak Devji
- (ii) Guru Ramdas Ji
- (iii) Guru Arjun Dev Ji
- (iv) Bhai Gurdas Ji
- (v) Guru Gobind Singh Ji

#### 3. Litratue: Non-detail Study-

##### Name of the Text Book:-

“SAHIT BODH (PART-I)  
EDITION-2009”

##### Published by :

Punjab School Education Board,  
Sahibjada Ajit Singh Nagar, Mohali,  
Chandigarh.

##### Lesson to be studied:-

1. Punjabi Bhasha
  2. Gurmukhi Lipi
  3. Punjabdian upbhashan di Shabdawali
- #### 4. Grammar:-
1. Compound Verbs.
  2. Samasi Shabd
  3. Opposite words and similar words.
  4. Prefix and Suffix
  5. Idioms, Proverbs & Phrases out of Text.
  6. Transformation of sentences.
  7. Tense.
  8. Word building.



**5. Composition:-**

1. Essay of about 250 words.
2. Letter writing to relatives, friends or on social matters.
3. Story writing.
4. Comprehension

**6. Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.

**Std. XII****Detailed Study****No. 1. PROSE :****Name of the Text Book**

“Ap-Bitian”

**Published by:**

Punjab School Education Board,  
Sahibjada Ajit Singh Nagar, Mohali,  
Chandigarh.

**Lesson to be studied :**

Lesson No	Name of the writer
1. Aabtabd	Prof. Puran Singh
2. Akhandpath	Giani Heera Singh
Karoon-Da-Aprath	Dard
5. Manukh-nal-	Gurbux Singh
manukh-Da-mali	Preet Lari
6. Mairi-Jail-Jatra	Nanak Singh
8. Takhat-Ja-Takhata	Dr. Mohinder Singh
Randawa	

9. Ladakpan	Principal Sujan Singh
10. Jawan-Jahan	Kartar Singh Duggal
11. Maira-Solwan-	Amrita Pritam
Varah	
13. 1 Janam, 2	Santokh Singh dir
Mata-Pita	
14. Babu Ji Da-Ek-	Dr. Dalip Kaur
Hor-Viwah	Tiwana
15. Maira-Nikka-	
Jaiha-Ghar	Ajit Kaur

**No.2. POETRY :****Name of the Text Book:**

“PUNJAB-KAV (Jhalkan-Te\_Ithas)  
Edition-2009.”

**Published by:**

Punjab School Education Board,  
Sahibjada Ajit Singh Nagar, Mohali,  
Chandigarh.

**LESSON TO BE STUDIED :****Part-I- Lesson No.3.- KISSA KAV.**

- (i) Damodar
- (ii) Varis Shah
- (iii) Kadar Jar

**Lesson No.4.- VEER-KAV.**

- (i) Shri Guru Gobind Singh
- (ii) Shah Mohammad

**Lesson No.5.- MODERN-KAV.**

- (i) Bhai Veer Singh
- (ii) Dhaniram Chatrik
- (iii) Prof. Puran Singh
- (iv) Prof. Mohan Singh
- (v) Nanad Lal Noorpuri
- (vi) Pritam Singh Safir
- (vii) Amrita Pritam
- (viii) Shiv Kumar Batalvi



**Part-II****A brief history of Punjab Poetry.****LESSON TO BE STUDIED :**

- (i) Chapter-I, Kissa kav.
- (ii) Chapter-II, Veer-Kav.
- (iii) Chapter-III, Modern-Kav.

**No.3. LITRATURE: Non-detail Study.****Name of the Text Book:-**

“SAHIT BODH. EDITION: 2010.”

**Published by :**

Punjab School Education Board,  
Sahibjada Ajit Singh Nagar, Mohali,  
Chandigarh.

**Lesson to be studied:-****Chapter I. Sahitik Roop:**

- (i) Kavita
- (ii) Nibandh
- (iii) Naval
- (iv) Nikki-Kahani
- (v) Ekangi (One Act Play)
- (vi) Jiwni (Biography)
- (vii) Swaih-Jiwni (Autobiography)
- (viii) Natak
- (ix) Safar-Nama

**Chapter II. SHAND**

- (i) Dohra
- (ii) Kavita
- (iii) Baint
- (iv) Chopai

**Chapter III. Nau-Ras**

- (1) Shingar
- (2) Hass

- (3) Karun
- (4) Rondar
- (5) Veer
- (6) Shant-Ras

**No.4.Grammar**

1. Prefix & Suffix
2. Tense
3. Compound and Simple Verbs
4. Transformation of sentences
5. Word-Building
6. Similar and opposite words
7. Idioms, Proverbs & Phrases out of Text
8. Samasi Words.

**No.5. Composition**

1. Essay of about in 250 words.
2. Letter writing to relatives, friends or on social matters.
3. Story writing.
4. Comprehension.

**No.6. Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.





## Modern Foreign Languages

German(14)/French(13)/Russian(20)/Japanese(21)

### Introduction

The world in the 21<sup>st</sup> century was shrunk to become a “global village” and the individual, a ‘global citizen’. Interdependence amongst nations is an inevitable fact and the exposure to foreign cultures, the need of the hour, in order to promote international understanding and co-operation.

Given this scenario, the knowledge of a foreign language becomes a handy tool for communication. The study of a foreign language by itself or coupled with other specializations viz. pure sciences, engineering, commerce, social sciences etc, is a major asset for any individual. Besides offering myriad job opportunities in international areas like industry, trade and commerce, foreign service, journalism, etc, it opens new vistas in the areas of travel and tourism, cinema, sports and cultural exchanges.

At a more personal level, the study of a foreign language provides the individual a unique opportunity to look at the world beyond his/her, to learn about other cultures even as he/she presents his/her own to others. In the process, he/she imbibes the good points from other cultures and introspects on his/her own, thus enhancing the learning process. Above all, the study of a foreign language and the civilization of its people give the young mind an opportunity to dream.

“I do not want my house to be walled in on all sides and my windows to be stuffed. I want cultures of all lands to be blown about

my house as freely as possible. But refuse to be blown off my feet by any.” – M.K. Gandhi.

### Objectives

The major objective of teaching a foreign language is to make students aware of a foreign culture and its people in order to promote international understanding and harmony by acquiring the necessary communication skills in the foreign language.

#### To enable students to

1. acquire a basic knowledge of the vocabulary and grammatical structures in the foreign language.
2. understand the foreign language as it is spoken.
3. speak the foreign language with confidence in simple day to day situations.
4. comprehend simple written texts.
5. write in simple reasonable correct sentences in the foreign language.
6. acquire the necessary communication skills which they may require for day to day social interaction.
7. develop his/ her personality and self-confidence by inculcating a sense of universal values like punctuality, cleanliness and respect for law and order.

### Special objectives

#### To enable students to

1. distinguish sounds of the foreign language.



2. listen for global understanding so as to be able to identify main points.
3. take dictation in a foreign language.
4. understand conversation in simple, familiar day to day situations.
5. listen to and understand a telephonic conversation.
6. understand the nuances conveyed through stress and intonation.
6. deduce the meaning of words, phrases with the help of context.
7. read notices, advertisements, news headlines and road signs etc.
8. learn to club or group sentences into appropriate sense groups/ grammatical groups.
9. learn to use a dictionary and reference material.

### **Speaking Skills**

#### **To enable students to**

1. pronounce words correctly in the foreign language.
2. make meaningful use of words, phrases and sentences in context.
3. produce simple statements, questions, commands and requests.
4. express his /her ideas coherently and logically in simple sentences.
5. answer questions set on simple texts orally.
6. narrate personal experiences, incidents and stories in brief.
7. describe a situation or to describe a picture.
8. converse appropriately in formal and informal contexts.
9. sing songs in the foreign language.

### **Reading Skills**

#### **To enable students to**

1. read aloud, with correct pronunciation, stress and intonation.
2. read aloud, at an appropriate pace and pauses, showing awareness of punctuation.
3. read aloud, seen short texts, poems with appropriate rhythm.
4. read silently with reasonable speed depending on the text.
5. read texts silently for overall understanding (skimming) and for finding specific information.

10. read for pleasure and knowledge.

### **Writing Skills**

#### **To enable students to**

1. master the art of writing including the use of punctuation marks, capital letters and spellings.
2. write grammatically acceptable and situationally appropriate forms of the foreign language.
3. write answers to questions based on the texts or reading material as well as to personal response questions.
4. frame statements, questions, commands and requests for their appropriate use in different contexts.
5. develop a paragraph on a given subject taking into account coherence, logical sequence and connective devices.
6. write informal letters, emails with the help of given points.
7. write essays, composition with the help of guidelines.
8. describe a situation and events with the help of given guidelines
9. write a short conversation with the help of given guidelines
10. answer questions based on charts, timetables, maps etc.
11. fill up registration /application form in a foreign language.



## Vocabulary

Development of vocabulary is important in language learning. Learners need to understand meanings of words with the help of context and to express themselves in that language. The textbooks and other material will offer necessary guidance in this regard. Learners should be taught situation based vocabulary so that they can use it/apply in real life situations.

### The following will be the weightage to the various skills expected

1. Reading and comprehension skill 30 %
2. Writing skill 30 %

3. Translation skill 20 %
4. Oral Test 20 %  
(Includes listening, comprehension, writing as in dictation, reading & speaking skills)

### Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## German (14)

### Std. XI

#### 1. Prose :

About 80 pages (Recommended text Themen Aktuell- Lessons from 1 to 6).

#### 2. Grammar

- (a) Conjugation of verbs or verb-groups of all type (i.e. weak, strong, simple, compound, auxiliary and modal auxiliary) in case of the following :
- (i) Indicative present tense.
  - (ii) Imperative for all three forms of second person.
- (b) Articles and Pronominal Adjectives: Declension of
- (a) The definite and indefinite articles
  - (b) demonstrative dieser, etc.
  - (c) interrogative: welcher, was fuer ein
  - (d) possessive adjectives: mein, dein, etc.
- (c) Cases : Accusative, dative
- (d) Numerals
- (i) cardinal numbers
  - (ii) ordinal numbers
- (e) Pronouns
- (i) the personal pronouns in all cases
  - (ii) impersonal pronouns
  - (iii) interrogative pronouns : wer, was
  - (iv) word- order or position of pronoun objects

- (f) Adverbs
- (a) of time, place, manner
  - (b) of affirmation or negation (ja, mein, doch)
- (g) Prepositions taking
- (a) accusative (b) dative
  - (c) governing both
- (h) Conjunctions :
- und, aber, oder, denn, etc.

### Std. XII

#### 1. Prose: about 100 pages

#### 2. Composition

- (1) This includes translation of passages into English or Marathi
- (2) Comprehension, and
- (3) Letter writing or guided essay of about 10- 12 sentences.

#### 3. Grammar

**N.B.:** The following new items are to be learnt in addition to those learnt in Std.XI

- (a) Adjectives : Declension
- (i) after the definite article
  - (ii) after the indefinite article
  - (iii) when not preceded by any article
- (b) Conjunctions : weil, dass, wenn, ob, interrogative pronouns, obwohl
- (c) Tense : indicative perfect tense (i.e. present perfect tense), indicative past tense
- (d) Degrees of Comparison: positive, comparative and superlative



- (e) Word formation : changing word forms: nouns to verbs and adjectives and vice versa
- (f) Infinitive constructions and clauses
- (i) Nouns, adjectives and verbs taking a dependent infinitive with 'zu'
- (ii) Verbs taking a direct infinitive without 'zu'
- (g) Subjunctive Mood: Conjugation of verbs in subjunctive, of verbs commonly used in every day expressions like moechte, wuerde.
- (h) Phrases

### Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## French (13)

### Std. XI

#### Coursebook: *En Echanges* 2<sup>nd</sup> revised edition

##### 1. Detailed study lessons:

0 to 10 + 2 bilans (About 75 pages)

##### 2. Grammar

- (i) Articles : Indefinite, Definite, Partitive
- (ii) Prepositions :
- (iii) Verbs : Regular and irregular  
: Reflexive and Non-Reflexive
- Moods : Imperative, Indicative
- Tenses : Present, Present Perfect (Passe, Compose) Immediate future, Recent Pass
- (iv) Adjectives : Qualitative, Numeral, Possessive, Demonstrative Interrogative comparative & superlative Degrees,
- (v) Nouns :
- (vi) Pronouns : Subject, direct object, indirect object, emphatic / disjunctive

##### 3) Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.

### Std. XII

#### Course Book: *En Echanges* 2<sup>nd</sup> revised edition

##### 1. Detailed Study :

Lessons 11 to 16 + 2 Bilans (about 75 pages)

- Note :**
1. Revision of Grammar studied in Std. XI
  2. The Question paper of H.S.C will be based on lesson 0-16.

##### 2. Grammar

- (i) Prepositions
- (ii) Adverbs
- (iii) Verbs Moods: Imperative, Indicative, conditional
- Tenses : Imperfect, future
- (iv) Adjectives : Comparative and Superlative degrees, Indefinite
- (v) Pronouns : Possessive,



- |                   |   |   |
|-------------------|---|---|
|                   | relative,<br>indefinite   | Emphatic<br>Possessive,<br>Interrogative,<br>Indefinite,<br>Relative (simple) |
| (vi) Adjectives : | Qualitative,<br>Numerical,<br>Possessive<br>Demonstrative<br>(Simple and<br>Compound),<br>Interrogative,<br>indefinite,<br>comparative and<br>Superlative<br>degrees. |   |
| (vii) Pronouns :  | Subject, Direct,<br>Indirect<br>Objective,  |   |

### 3. Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Russian (20)

### Std. XI

1. **Prose: About 85 pages**
2. **Composition**
  - (i) translation of Russian into English or Marathi
  - (ii) comprehension
  - (iii) letter or guided essay of about 10-12 sentences
3. **Grammar**  
Arising out of the prescribed text-book:
  - (1) Introduction to logical stress, word stress, sound systems and Pronunciation.
  - (2) Use of nouns and pronouns in singular and plural both in nominative case
  - (3) Use of Prepositional case denoting place.
  - (4) Use of imperfect verbs in present and past tense.
  - (5) Use of Demonstrative Pronouns ETOT.
  - (6) Use of simple impersonal syntactic structures
4. **Oral Skills.**  
Listening activities : develop the sub-skills of listening, provide practice in ear-training.  
Loud-reading : following the features of loud reading, provide practice in loud-reading.  
Speaking : creating confidence in speaking. Using narration and description.  
Conversation : ability to converse confidently and effectively, provide practice in conversation.  
Formal testing in oral skills will be administered.

### Std. XII

1. **Prose** : About 90 pages
2. **Composition**
  - 1) This includes translation of passages into English or Marathi.
  - 2) Comprehension, and
  - 3) Letter writing or guided essay of about 10-12 sentences.
3. **Grammar**  
Arising out of the prescribed text-book
  - (1) Revision material covered
  - (2) Use of Nouns in prepositional, Accusative, Dative and Genitive case
  - (3) Use of present, past and future tense
  - (4) Use of aspects of verb
  - (5) Use of Accusative case denoting direction. Use of verbs of motion 'IDIT' and 'KHODIT'
  - (6) Use of short forms of adjectives.
  - (7) Impersonal, compound and complex sentences
  - (8) Use of cardinal numerals
4. **Oral Skills.**  
Suggested classroom activities for French, German & Russian languages
  1. Projects
  2. Models
  3. Songs
  4. Recitation of poems
  5. Collection of news paper articles related to the country-continent.
  6. Information from various sources - about language and countries in which the language is spoken.



7. Visits – factories (collaboration)  
Institutes - Max Muller Bhavan  
- Alliance Franchise  
- M.E.L.Dept.  
University of Pune  
(Ranade Institute)
8. Use of dictionary
9. Recipes
10. Story telling
11. Group-discussion
12. Elocution
13. Dialogue-Role play
14. Narrating jokes
15. Bring native speakers (whenever possible) and let the students hear the languages, intonation, ask questions, converse, etc.
16. Give site addresses to browse on internet to find out more information on Grammar exercises, extra reading material, passages etc.



## Japanese (21)

### Introduction

Since the time of Industrial Revolution, western countries have been leaders of technology. The Colonialism in the 17<sup>th</sup>, 18<sup>th</sup> and 19<sup>th</sup> centuries helped increase their spheres of dominance the world over. The two world wars and their aftermath however changed all this.

In the post world war scenario Japan has emerged from the ashes to become a major industrial force in the world. Whether it is heavy engineering, electronics, or automobile industry, Japan has taken the lead and flooded the world markets with quality goods at much cheaper prices. Industry apart, Japanese work culture is also an object-lesson in discipline and perfection and is being adopted by other countries.

With growing affluence, the Japanese are major contributors to the tourism industry. Today, their presence is in evidence at every tourist spot the world over.

India, for its part, has several tie-ups with Japanese companies. We are also trying to promote India as tourist destination. Obviously, there is a great demand for translators, interpreters and personnel fluent in Japanese. Institutes teaching Japanese are mushrooming in every major city to cater to the ever-increasing demand. Students too are looking eastwards for fresh pastures.

Japanese is the language of one of the most technically and industrially advanced nations. A lot of technical literature produced in Japan is not available in any other language.

Thus, the Japanese language which is a unique one with 3 scripts and a grammar similar to Indian languages, is ideal for study by Indian students (who have a gift for languages). This will present them with an opportunity to communicate with the Japanese people and will open various career opportunities.

The major objective of teaching Japanese is to make students aware of a foreign culture and its people in order to promote international understanding and harmony by acquiring the necessary communication skills in the foreign language.

### General objectives

#### To enable the students to

1. acquire a basic knowledge of the vocabulary & grammatical structures in the foreign language.
2. understand the foreign language as it is spoken.
3. speak the foreign language with confidence in simple day to day situations.
4. comprehend simple written text.
5. write in simple & reasonably correct sentences in the foreign language.
6. acquire the necessary communication skills which they may require for day to day social interaction.
7. develop his/her personality and self-confidence by inculcating a sense of universal values like punctuality, cleanliness and respect for law and order.



## Specific Objectives

### To enable the students to

1. distinguish sounds of the foreign language.
2. listen for global understanding so as to be able to identify main points.
3. take dictation in a foreign language
4. understand conversation in simple, familiar day to day situations.
5. listen to and understand a telephonic conversation.
6. Understand the nuances conveyed through stress and intonation.

## Speaking Skills

### To enable the students to

1. pronounce words correctly in the foreign language.
2. make meaningful use of words, phrases and sentences in correct.
3. produce simple statements questions, commands and requests.
4. express his/her ideas coherently and logically in simple sentences.
5. orally answer questions set on simple texts.
6. narrate personal experiences incidents and stories in brief.
7. describe a situation or to describe picture.
8. converse appropriately in formal and informal contexts.
9. sing songs in the foreign language.

## Reading Skills

### To enable the students to

1. read aloud, with correct pronunciation, stress and intonation.
2. read aloud, at an appropriate pace and pauses, showing awareness of punctuation.
3. read aloud, seen short texts, poems with appropriate rhythm.
4. read silently with reasonable speed depending on the text.

5. read texts silently for overall understanding (skimming) and for finding specific information.
6. deduce the meaning of words, phrases with the help of context.
7. read notices, advertisements, news headlines and road signs, etc.
8. learn to club or group sentences into appropriate sense groups/ grammatical groups.
9. learn to use a dictionary and reference material.
10. read for pleasure and knowledge.

## Writing Skills

### To enable the students to

1. write in three scripts
2. write answers to questions based on the text or reading material as well as personal response questions.
3. frame statements, questions, commands and requests for their appropriate use in different contexts.
4. develop paragraph on a given subject taking into coherence, logical sequence and connective devices.
5. write informal letters with the help of given points.
6. develop story with the help of given outline/points.
7. write essays, compositions with the help of guidelines.
8. describe a situation and events with the help of given guidelines.
9. write short conversation with the help of given guidelines.
10. Answer questions based on charts timetables, maps, etc.
11. Fill up registration / application foreign language.



**Std. XI**

1. **Script** : HIRAGANA, KATANAKA, KANJI (Chinese characters approx 60)
- 1(a) **Vocabulary** : 400 words
2. **Particles** : wa, no, ka, mo, ga, To, Kara, ya – made ni, e, o Nado, de, etc.
3. **Adjectives** : 'I' and 'na' adjectives, negative and past tense
4. **Verbs** : present and past tense, negative form
5. **Sentences** : Simple and Compound
6. **Counting** : Units for counting objects of different types systems
7. **Demonstrative Expressions** : 'ko', 'so', 'a', 'do', dare donna etc
8. **Honorific Expressions** : 'o', 'go', 'san', 'kata'
9. **Adverbs** : mo, mada, goro, gurai,
10. **Composition** : short passages and essay.
11. **Listening** : tapes of lessons

**Std. XII**

1. **Script** : Chinese characters 40
- 1(a) **Vocabulary** : 200 words
2. **Verbs** : te form ta form, tai form, negative form tari form, Nagara form transitive and intransitive form.
3. **Particles** : Particles ni, de and to (advance usages)
4. **Sentences** : advance usages of verb forms in sentences.
5. **Adverbs** : taihen, shikashi, jeredomo, hontoni, soshite, sorekara, dakara, zutsu
6. **Composition** : short passage and essay, short stories
7. **Listening** : tapes of lessons

**Recommended text book :****NIHONGO SHOHO-I**

(The Japan foundation prescribed text copyright- JALTAP, PUNE)

**Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Std. XI

### Unit 1

General information about Japan Language  
Japanese scripts

HIRAGANA and KATAKANA Vocabulary 100 words.

Self introduction in Japanese. Basic greetings and classroom expressions.

Particles – WA, NO, KA, MO

Indicators – KORE, SORE, AARE, AND KONO, SONO, AANO

Basic sentence patterns

A wa B desu / desuka/ dewa arimasen

A wa B desu. C mo B desu

A wa B no C desu.

### Unit 2

Basic conversation. Additional vocabulary

Revision of sentence pattern and indicators

A wa B desu / desuka / dewa arimasen

A wa B desu. C mo B desu

A wa B no C desu.

### Unit 3

Introduction to new Japanese script KANJI

New Particles NI, GA, TO VA, NADO, KA

Introduction of new sentence pattern

A ni B ga arimasen

A ni B to C nado ga arimasen

A ni B ya C nado ga arimasen

Additional Kanju and vocabulary

### Unit 4

Introduction to place indicators, Koko, Soko, Asoko and direction

Markers. Introduction of new sentence pattern.

A ni B imasu (for living things)

A ni B ga imasu

Joining of two sentences with the conjunction 'DE'

Additional Kanji and vocabulary

### Unit 5

Introduction to Japanese counting system and various counters for different types of objects

Introduction of new sentence pattern -shilka arimasen (for non living things)/ imasen (for living things)

Introduction and use of 'I' adjectives

Additional Kanji and vocabulary

### Unit 6

Introduction of Japanese currency & usages in regular life

Revision of Usages of various 'I' adjectives & introduction of 'na' adjectives. Joining of two adjectives in a sentence.

### Unit 7

Introduction to Years/ Months/ Dates in Japanese and their counting system.

Introduction to four seasons in Japan

Use of new particle 'HE' (direction indicator) and 'KARA MADE' Additional Kanji, vocabulary and verbs in different groups.

### Unit 8

Introduction of "Days of the week"

Revision of previous patterns

Additional Kanji, vocabulary, adjectives and verbs in different groups

### Unit 9

Introduction Japanese time counting system

Japanese terms for hr/min/sec/am/pm

New use of 'DE' particle and introduction of 'MOU' and 'MADA'

Use of words "GORO" and "GURAI"

Additional Kanji, vocabulary, adjectives and verbs in different groups

### Unit 10

Introduction of different forms of adjectives

Present/ Past/ Future/ Affirmative/ Negative forms of Adjectives

Geographical introduction of Japan (main island



and major cities, their climate conditions). Festivals according the seasons throughout the year. Additional Lamko, vocabulary, adjectives and verbs in different groups.

## Std. XII

### Unit 1

Introduction of new use of particle “NI” as purpose / aim

Introduction of new use of particle “TO”

Conversational practice of different patterns and their sentences.

Additional Kanji, vocabulary, adjectives and verbs in different groups.

### Unit 2

Introduction of new use of particle “NI” an “TO”

Introduction to noun modifier.

Additional Kanji, vocabulary, adjectives and verbs in different groups.

### Unit 3

Introduction of continuous present tense “TE” form of verbs and their various uses.

Introduction of colloquial past tense ‘TA’ for of verbs

Additional Kanji vocabulary, adjectives and verbs in different groups.

### Unit 4

Introduction of “NAI” form of verbs used as

“Polite Order/ Request

Patterns. Various uses of “TE” and “Ta” form

Introduction to compound / auxiliary verbs

Additional Kanji vocabulary, adjectives and verbs in different groups.

### Unit 5

Introduction different greetings in daily conversation

Importance of “TO” particle

Various uses of “TE” and “Ta” form

Additional Kanji vocabulary, adjectives and verbs in different groups.

### Unit 6

New use of particle “GA” used for natural action

Various uses of “TE” and “Ta” form

Additional Kanji vocabulary, adjectives and verbs in different groups.

### Unit 7

Revision of Noun modifier

Various uses of “TE” and “Ta” form.

Introduction of special verbs for special uses.

Additional Kanji vocabulary, adjectives and verbs in different groups.

### Unit 8

Introduction of transitive and intransitive verbs and their uses

Basic mathematical calculations such as addition, subtraction, multiplication etc.

Additional Kanji, vocabulary, adjectives and verbs in different groups





## Classical Languages

### Sanskrit (33)/Pali (35) / Ardhamagadhi (16)

इयत्ता ११ वी १२ वी संस्कृत

#### Objectives

##### To enable the students to

1. study carefully the new words, their meaning, forms and rules of grammar.
2. listen to the short stories in Sanskrit for better understanding and construction of the stories.
3. develop the positive attitude towards life, develop moral character with the help of values reflected in Sanskrit literature.
4. appreciate the ideas and the noble thoughts depicted in Sanskrit literature
5. read the passages from prescribed text, to understand their meaning and write the answers of the questions in the medium offered.
6. write correctly new words with their meaning.
7. translate Sanskrit passages into their mother tongue and vice versa.
8. write an essay in Sanskrit on the given topic
9. know the history of Sanskrit literature.
10. communicate their thoughts in Sanskrit.
11. appreciate the passages of Sanskrit plays.
12. read the prescribed verses properly with the help of meters.
13. pronounce the words properly while reading prose and poetry.



## Sanskrit (33)

### Std. XI

- 1) **Prose** : Lesson (about 300 lines)
- 2) **Poetry** : Lesson (about 200 lines)  
One lesson should comprised of following meters –  
१. वंशस्थ २. वसन्ततिलका  
३. शार्दूलविक्रीडित
- 3) **Rapid Reading** - About 100 lines. (Prose and Poetry)
- 4) **Grammar** : Revision of VIII to X Std.  
A) Recognise the forms of – Nouns, Pronouns, Tense, Moods, Gerunds त्वान्त, ल्यबन्त, Infinitives of purpose तुमन्त  
B) Compounds - अव्ययीभाव/द्वंद्व, नञ् तत्पु/षष्ठी तत्पु, कर्मधारय, बहुव्रीहि. द्विगु/उपपद/विभक्ति तत्पु.  
C) Do as directed  
1. Dissolve Sandhi  
2. Remove सति सप्तमी  
3. Change into sing./ plu. form  
4. use भवान् instead of त्वम् or vise versa  
5. उपपदविभक्ती  
6. Correct the sentence  
7. Remove त्वान्त, ल्यबन्त

8. Change the subject according to the verb.
9. Use numerals
10. Use proper form of the noun/root

D) Recognise the following तद्धित and कृदन्त

5) General information about the History of Classical Sanskrit Literature.

### 6) Composition

- a) Translation of ten sentences into Sanskrit
- b) A gap story (about 20 gaps)
- c) Short descriptive essay in Sanskrit of about 10 sentences.

### 7) Comprehension

Answer the questions on a given unseen Sanskrit passage in the medium offered.

OR

Draw a tree diagram from the given data in Sanskrit

8) **Oral skills** - (listening, loud reading, speaking and conversation)

### Std. XII

- 1) **Prose** : Lesson ( about 300 lines)
- 2) **Poetry** : Lesson ( about 200 lines)  
One lesson should comprised of following meters –  
१. मन्दाक्रान्ता २. शिखरिणी  
३. पृथ्वी



- 3) **Rapid Reading** -  
About 100 lines.  
(One from prose and one from poetry)
- 4) **Grammar** As prescribed upto Std.XI
- 5) General information of Ved, Vedanga and texts on various Sciences
- 6) **Composition**
- Translation of ten Sentences into Sanskrit
  - A gap story (about 20 gaps)
  - Short descriptive essay in Sanskrit about 10 sentences
- 7) Answer the questions on a given unseen Sanskrit Passage in the medium offered.  
OR  
Draw a tree diagram from the given data in Sanskrit.
- 8) **Oral skills**
- Listening activities : develop the sub-skills of listening, provide practice in ear-training.  
Loud-reading : following the features of loud reading, provide practice in loud-reading.  
Speaking : creating confidence in speaking. Using narration and description.  
Conversation : ability to converse confidently and effectively, provide practice in conversation.  
Formal testing in oral skills will be administered.



## Pali (35)

### Objectives

#### To enable pupils to

1. know the structure of the classical language Pali.
2. develop and study the patterns of pronunciation in connection with Pali.
3. hear with interest the different prose-poetry passage.
4. read fluently some passages.
5. know the sentence pattern and to write some sentences in Pali.
6. recognize and write the difference between a Pali word and Sanskrit word.
7. study the grammatical peculiarities.
8. find out different word patterns in Pali and State Language.
9. read Pali literature properly and to understand its meaning.
10. study quotations of the Lord Buddha and to have knowledge of the Buddhist Culture.
11. translate the Pali passages in the mothertongue or the medium offered.
12. know more about the ancient history and culture through their knowledge of Pali.
13. appreciate the noble thoughts from Pali literature.

### Std. XI

- 1) **Prose:** गद्य - About 250 lines
- 2) **Poetry :** पद्य - About 150 lines
- 3) **Rapid Reading** - About 100 lines
- 4) **Grammar** - वर्ण, संधी, काळ, विभक्ती.
- 5) **General knowledge** -  
पालि भाषेची व्युत्पत्ती, पंचशील, पबबजा, बोधिसत्त्व, भारत, सिलोन, थायलंड, ब्रह्मदेश, तिबेट, चीन व जपान मधील बुध्द धम्माचा प्रचार आणि प्रसार
- 6) **Translation and Composition**  
(Translation of simple passage in to Pali and a composition of about 10 lines in Pali)
- 7) **Oral Skills** (Listening, Loud Reading, speaking and conversation)

### Std. XII

- 1) **Prose:** गद्य - About 300 lines
- 2) **Poetry :** पद्य - About 200 lines
- 3) **Rapid Reading** - About 100 lines
- 4) **Grammar** -  
Tense, Sandhi, Conjunctions, Coumpounds, Adjectives and arising out of the text prescribed. Use phrases.
- 5) **General knowledge**  
Chattari Ariyasachchani, Ariyo Atthangiko maggo, Patichcha Samutpado, Three Council, (1,2,3)  
Buddhist king- Bimbisar, Asoka, Harshavardhan.



Universities - Nalanda, Takkasila,  
Vallabhi

**6) Translation and Composition**

(Translation of simple passage in to Pali and a composition of about 10 lines in Pali)

**7) Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Ardhamagadhi (16)

### Introduction

Ardhamagadhi occupies a very unique position of phenomenon in the whole range of classical languages. Since time immemorial classical dramas in ancient India were written both in Sanskrit and Ardhamagadhi. This phenomenon bears testimony to the mass appeal of Ardhamagadhi. Similarly principles of non-violence, forgiveness, compassion and tolerance as enshrined in Ardhamagadhi literature have been accepted at the national level. In fact the principle of non-violence was preached by Lord Mahavira. It was later on upheld by Mahatma Gandhi and used effectively as a means of agitation by the Mahatma to achieve independence. Subsequently it was reflected in Indian policy of non-alignment. In fact non-alignment of a logical extension of non-violence. Thus the contribution of Ardhamagadhi to Indian culture and civilization is significant. Taking into consideration this background the syllabus has been the restructured.

### Objectives

#### To enable the pupils to

1. acquire fair knowledge of basic structure of the language and elements of grammar as per the syllabus.
2. enrich the vocabulary.
3. listen carefully to, and with understanding, the spoken passage read out to them, as well as lectures, talks etc. at normal conversational speed.
4. comprehend different forms of literary passages (seen & unseen) in their various aspects, structure significance, development of the theme and the writer's point of view.
5. develop the ability to prepare notes on lectures, write reports and summaries conversations, lectures and talks with proper speed.
6. acquire skills in reading aloud seen and unseen passages fluently with proper articulation, intonation, pronunciation and understanding.
7. acquire skills in reading silently story books, newspapers, magazines and other prescribed texts with proper understanding.
8. develop ability to narrate experiences, participate in debate and discussions and express their views in correct language and in logical sequence.
9. develop the ability to express ideas from the texts in their own language without distorting the content.
10. develop skills in writing composition like essays, letters, summaries of given passages in appropriate language and proper idiom.
11. make proper use of dictionary and other reference material.
12. develop interest in reading literary passages and appreciating the beauty of language and the content, ideas and concepts.
13. cultivate broad human and cultural outlook through the study of Ardhamagadhi literature.
14. listen to literary passages read by teachers carefully.
15. listen to shlokas, subhashitas (couplets/ quartets) and stotras (a poem in praise of



- deity) and stories carefully.
16. speak sentences in Ardhamagadhi with proper intonation.
  17. recognize the difference between short and long vowel
  18. tell the information to others in the language.
  19. answer questions correctly.
  20. write short sentences about given subject.
  21. translate Ardhamagadhi passages and shlokas into the medium of instruction offered.
  22. write good wishes and messages on different occasions in Ardhamagadhi.

### Std. XI

- 1) **Prose:** गद्य - About 300 lines.
- 2) **Poetry** : पद्य - About 200 lines
- 3) **Rapid Reading**  
About 100 lines
- 4) **Grammar** – arising out of the text prescribe.
- 5) **General knowledge**  
अर्धमागधी भाषेची व्युत्पत्ती, इतर भाषांशी संबंध, अर्धमागधीमधील प्राचीन ग्रंथ व ग्रंथकारांची नावे- विमलसूरीचे पउमचरिय, उद्योनतसूरीचे-कुवलयमाला, हरिभद्रसूरीचे, धूर्ताख्यान (धूताक्याण), समरादित्यकथा (समराइच्चकहा), कवि हाल-गाथासप्तशती (गाहासत्तसई), आचार्य कुंदकुंद समयसार, पवयणसार पंचात्थिकाय.

General knowledge about the classical literature and famous authors. Vimalsure, Vakpatiraj pravarsena, Hala, Udayana, haribhadrasure, Kouhala, Jayavallabha, Rajshekhara, Rampanivada, Gunadhya.

- 6) Translation of unseen Ardhamagadhi passage into the medium offered.
- 7) **Project Work:**
  1. To visit to a good library

2. To visit Historical places, forts, etc.
3. To have an educational excursions to old caves and tombs.

### Std. XII

- 1) **Prose:** गज्ज - About 300 lines
- 2) **Poetry** : पज्ज - About 200 lines
- 3) **Rapid Reading** - About 100 lines
- 4) **Grammar**  
arising out of the text prescribe
- 5) **General knowledge**  
General knowledge of the cultural heritage reflected in Ardhamagadhi literature, Mahavira and his teaching, sects of Jainism, spread of Jainism, influence of Jainism on Indian culture, Ashoka's rock inscriptions.
- 6) Translation of simple unseen passages into Ardhamagadhi Descriptive composition in Ardhamagadhi in about ten lines on some simple topics passage the medium offered.
- 7) **Project Work :**
  1. To visit to a good library
  2. To visit Historical places, forts, etc.
  3. To visit the Stupas and pillars having stone inscription
  4. To visit the old temples

### Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Persian (37) / Arabic (36) / Avesta-Pahlvi (87)

### Introduction

Persian has a long history of its origin and development. In India Persian has served as court language for more than six hundred years. During these years Persian language has produced a number of poets and writers irrespective of caste and religion from all over India and assimilated deferent thoughts.

Due to its long history of origin and development Persian language is regarded as classical language. But, like other languages of the world Persian language has also gone through transformation and therefore, the literature produced in Persian from the beginning of the twentieth century onwards is classified as modern Persian.

The vital role which the Persian language has played in India for, almost, more than six centuries has made the language, especially in Indian perspective quite important. Moreover, the multifaceted literature produced in India in Persian language reflects the love and affection which the poets and writers had for India. The poetry of Amir Khusrav, Faizi, Abu Talib Kaleem and writings of Abul Fazal are few examples to be quoted.

During centuries Persian language has left vast impact on Indian languages, foods, dresses, place names, fruits and Indian culture. Thus, in medieval India Persian language immensely helped in the growth of composite culture and common heritage and in modern times Persian language is serving as a bridge between India and Persian Speaking countries of the world. It is therefore, that the study of

Persian language and rich literature produced in it is unavoidable at secondary and higher Secondary levels.

### Std. XI & XII

#### To enable the Students to :

- 1) become well acquainted with structure for the comprehension of text.
- 2) have comprehension of published and relayed speeches by electronic media.
- 3) have the ability of the reading journals and news papers of Persian language.
- 4) develop oral skills as well as applied uses of Persian language.
- 5) convey the spirit of Indian culture and message of love and peace.

#### Specific Objectives

##### To enable the Students to

- 1) develop interest for literary activities and academic studies through the spirit of Persian language.
- 2) visit culture house, consulate and embassy of Iran in India.
- 3) have knowledge of right to information and right to education.
- 4) have the skill of computer operation, internet and using online education.
- 5) develop awareness of evils and adverse effects of alcohol.
- 6) create awareness of gender equality.
- 7) develop awareness of national integration and patriotism through Persian language.
- 8) develop common cultural outlook through literature.



## Persian (37)

### Std. XI

#### Text Book (Classical and modern)

**Prose** : 60 pages (Excluding introductory note, exercises, glossary, character sketches, travelogues, stories and literary pieces)

**Poetry** : 100 couplets (forms of poetry, Gazal, Masnavi Qasida and Rubai.)

#### Composition :

- 1) Reproduction of descriptive and narrative paragraphs of about 10 lines on simple topics from the text.
- 2) Translation from the language of instruction into like English, Urdu, Marathi, Hindi or Gujarati.
- 3) Simple essay writing on a given topic consisting of about 15 lines Writing simple letters.

#### Grammar :

- 1) Revision of the curriculum for the previous classes at the secondary level.
- 2) Prefixes and suffixes
- 3) Idioms and phrases
- 4) Numerals (Cardinals and Ordinals)
- 5) Singular and Plural
- 6) Figures of speech Maraatun-Nazeer, Husne Talil, Tajahule-Aarefana, Talmih, Ishteqaq.

### Std. XII

#### Text Book (Classical and modern)

**Prose** : 60 pages (Excluding introductory note, exercises and Glossary) Biographical Sketches, Essays, Dialogue. Letter, a short history of modern Persian prose.

**Poetry** : 250 couplets (A short history of modern Persian poetry)

#### Composition :

- 1) Reproduction of descriptive and narrative paragraphs of about 15 lines on simple topics from the text.
- 2) Translation from the language of instruction into English, Urdu, Marathi, Hindi or Gujarati.
- 3) Translation and explanation of prose and extracts from poetical text.
- 4) Writing simple essays on any given themes.
- 5) Writing simple letters.

#### Grammar :

- 1) Revision of the curriculum for Std. XI
- 2) Compound verbs and Nouns
- 3) Figures of speech Laffo Nashr Murattab and Ghair murattab)
- 4) Prosody : Scansion of Bahr-e Mutaquarib Salim and Bahr-e Hazaj Salim,

#### Oral Skills

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.



## Arabic (36)

### Introduction

Arabic is regarded as a classical language. It is only because of long history of its origin and rich literature which the language possesses. But, like other languages of the world, Arabic, through the ages, has also gone into transformation and has produced modern literature.

Due to close contacts between India and Arabic speaking countries in various fields especially in the field of trade, gradually Arabic language left a great impact on Indian languages and culture.

During medieval India Arabic was given very high regards in India and the language produced vast literature.

The influence of the Arabic language is not only confined to the Indian languages and culture but its impacts can be seen in other areas also. And this very impact of the language helped in emergence of a common Indian heritage and culture.

On one hand the classical literature of the language helps a student of Arabic language in learning morale and ethics which are essential for survival of mankind in the era of globalization. On the other hand the modern Arabic language is regarded as a link language between India and Arabic speaking world.

To learn morale and ethics and to preserve common heritage and culture which the Arabic language has left, keeping in mind the importance of Arabic as a link language between India and Arabic speaking countries in modern times, the interest in learning the language is day by day increasing.

### Std. XI & XII

#### General Objectives

##### To enable the students to

1. become acquainted with sentence structures in order to comprehend text material.
2. comprehend the speeches published in print and relayed by the electronic media.
3. read journals and newspapers published in Arabic language.
4. develop oral skills as well as applied usage of the Arabic language.
5. convey the spirit of Indian culture and the message of love and peace to all the citizens of the world through this language.

#### Specific Objectives

##### To enable the pupils to

1. develop the love for literary activities and academic studies through the spirit of research in Arabic language.
2. provide an opportunity to Indian students to visit foreign culture houses, consulates and embassies.
3. have thorough knowledge of right to education, right to information.
4. acquire ability to make use of computer, internet, on line education etc.
5. develop awareness of adverse effects of alcohol.
6. arouse in them active interest in Arabic in order to get an idea of the great heritage of the ancient medieval India and its tradition, wisdom and culture.



7. develop awareness of national integration and patriotism through Arabic language.
8. develop common cultural outlook through literature.
9. develop awareness of gender equality.

### Std. XI

#### Text Book (Classical and modern)

**Prose** : about 70 pages (excluding introductory notes, exercises and glossary) Character-sketches, Stories, Travelogues, Literary pieces and humorous anecdotes.

**Poetry** : 100 verses.

#### Composition :

- 1) Translation of simple Arabic sentences into the language of instruction and vice versa.
- 2) Reproduction of descriptive and narrative paragraphs of about 15 lines on a simple subject from the text.
- 3) Writing simple essays of about 15 lines on given topics.
- 4) Translation and explanation of prose and poetry extracts from the Text.
- 5) Letters of invitations and personal requests.

#### Grammar :

- 1) Revision of the curriculum studied in the previous classes at the secondary level.
- 2) Awazan-e-Mubalagha (such as faeel, faaal, fuool, faool.)
- 3) Noun of instruments such as mifal, mifaal.
- 4) Idioms.
- 5) Provrbs.

#### Oral Skills :

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud

reading, provide practice in loud-reading.

Speaking : creating confidence in speaking.

Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.

### Std. XII

#### Text Book (Classical and modern)

**Prose** : 70 pages (excluding introductory notes, exercises and glossary) Essays, Biographical Sketches, Letters, Dialogue.

**Poetry** : 100 verses.

#### Composition :

- 1) Translation from Arabic into the language of instruction and vice versa.
- 2) Reproduction of descriptive and narrative paragraphs of about 10-12 lines on a relevant subject from the text
- 3) Writing simple essays on given topics
- 4) Translation and explanation of prose and poetry out of the text-book.
- 5) Letters of invitations (personal requests)

#### Grammar :

- 1) Revision of the curriculum studied in the previous classes at the secondary level.
- 2) Awazan-e-Mubalagha (such as faeel, faaal, fuool, faool.)
- 3) Simple and compound sentences.
- 4) Conjugation of al-Madi and al-Mudare.
- 5) Figures of speech : Tashbih Isti'ara, Majaz Mursal etc.

#### Oral Skills

(Practice of conversation in Arabic)



## Avesta-Pahlavi (87)

### Introduction

Persian and Arabic have been regarded as Indian Classical Languages and also as modern foreign languages learnt, spoken and retained in India. It is their association with Indian society and culture spanning centuries, even a millennium that has made them the link languages of medieval India and India of the modern era. It is the cultural impact of these languages on other languages that has helped to develop a composite culture which Indian society is proud of. Even in the modern era the study of these languages may open new avenues to develop relations with Afro Asian countries for culture and trade. Due to the cultural impacts of these two languages there is a growing tendency and urge to learn them at a higher level too. With this urge in view, the objectives of learning these languages at +2 level are quite specifically laying emphasis on the comprehension and conversational.

### Objectives

#### To enable the students to

1. become acquainted with sentence structures in order to comprehend text material.
2. comprehend the speeches relayed by the media.
3. read journals and newspapers published in this language.
4. develop oral skills as well as applied usage of the language.
5. convey the spirit of Indian culture and the message of love and peace to all the citizens of the world through this language.
6. provide an opportunity to Indian students and the students returning to India from a foreign land after a long stay and students from abroad to continue their studies in pursuit of knowledge and research.
7. develop the love for literary activities and academic studies through the spirit of research in these languages.

### Std. XI

#### 1. Text-Book AVESTA :

Uzirin Gah Sroch Yasht Hadoxt PAHLAVI:  
The Pahlavi Karnamag-i-  
Artaxsir Papakan by D.P.SANJANA,  
Mumbai (1896) Chapters 2-4.

#### 2. Composition :

Translation of simple sentences from Avesta and Pahlavi into English or medium of instruction offered and English into Avesta.

#### 3. Grammar AVESTA :

Alphabet with transcription- Sandhi, Guna and Vriddhi - Roots and Formation of Nouns- Degrees of Adjectives- General case Terminations- Declensions of Nouns and Adjectives- 10 Classes of Verbs, Conjugational and non-Conjugational Tenses and moods. Prefixes and Suffixes-Cardinal and Ordinal Numerals.

PAHLAVI : Alphabet with transcription- Joining of letters-Nouns- pronouns Adjectives-Prepositions, Prefixes and Suffixes-Verbs

(Preterite and Present)



**Reference Avesta Grammar by K.E.KANGA and Avesta Texts for University Students published by the Trustees of the Parsi Panchayat, Mumbai (1954)**

**4. Oral/Conversational Skills.**

**Std. XII**

**1. Text-Book**

AVESTA : Hormazed Yasht.

PAHLAVI: The Pahlavi Dadestani i Mengog i.

Xrad by D.P.SANJANA], Mumbai 1981 Chapters 3-20.

**2. Composition** Translation of unseen simple sentences from Avesta and Pahlavi into English or medium of instruction offered and English into Avesta.

**3. Grammar AVESTA :**

Alphabet with transcription- Sandhi, Guna and

Vridhhi - Roots and Formation of Nouns- Degrees of Adjectives- General case Terminations- Declensions of Nouns and

Adjectives-10 Classes of Verbs, Conjugational and non-Conjugational Tenses and moods. Prefixes and Suffixes-Cardinal and Ordinal Numerals. PAHLAVI: Alphabet with transcription-Joining of letters-Nouns-Pronouns-Adjectives-Prepositions, Prefixes and Suffixes-Verbs (Pretorite and Present)

**Reference Avesta Grammar by K.E.KANGA and Avesta Texts for University Students published by the Trustees of the Parsi Panchayat, Mumbai (1954)**

**4. Oral/Conversational Skills**

**Oral Skills**

Listening activities : develop the sub-skills of listening, provide practice in ear-training.

Loud-reading : following the features of loud reading, provide practice in loud-reading.

Speaking : creating confidence in speaking. Using narration and description.

Conversation : ability to converse confidently and effectively, provide practice in conversation.

Formal testing in oral skills will be administered.





## (B) Elective Subjects

### मराठी साहित्य

#### प्रास्ताविक

ज्या विद्यार्थ्यांना मराठी साहित्याच्या अभ्यासात अधिक रस आहे त्यांच्यासाठी हा विषय शिकविला जाईल. मराठी हा विषय 'आधुनिक भारतीय भाषा' म्हणून वैकल्पिक स्वरूपात सध्याच्या अभ्यासक्रमात उपलब्ध आहे. तो तसाच राहिल. मात्र त्यात व्याकरण, उपयोजित मराठी यांचा समावेश आहे; तसा मराठी साहित्य या विषयाच्या अभ्यासक्रमात करता येणार नाही.

सध्याच्या काळात भाषांच्या अभ्यासाचे महत्त्व कमी होत चालले आहे. भाषांच्या अभ्यासाकडे होणाऱ्या दुर्लक्षाचे परिणाम काही वर्षांनी तीव्रतेने जाणवू लागणार आहेत. मानवजातीने सर्व ज्ञान आजवर भाषेच्या माध्यमातून जोपासले व वाढविले आहे, जतन केले आहे. भाषेचा व्यावहारिक उपयोग शिकविण्याची जी गरज आहे, ती भागविण्यासाठी सध्याचा नववी व दहावीचा मराठीचा अभ्यासक्रम व इ. ११ वीचा नवा प्रस्तावित 'उपयोजित मराठी' हा अभ्यासक्रम सक्षम आहे. परंतु मराठी साहित्य हा विषय उपलब्ध व्हावयास हवा, याची काही वेगळी कारणे आहेत.

साहित्य किंवा ललित वाङ्मय हे मानवी जीवनाचे सर्व अंगांनी चित्रण करीत असते. प्रत्येक माणूस जीवनाच्या विविधांगी स्वरूपाचा अनुभव घेऊ शकेल, असे नाही. एका माणसाचा जीवनानुभव मर्यादितच असतो. पण साहित्य त्याला मानवी जीवनाचा, भावनांचा, विविध अनुभवांचा पट उलगडून दाखविते व त्याची जीवनविषयक जाणीव समृद्ध करते. सध्याच्या काळात जीवनातील गुंतागुंत व जीवनाचा वेग वाढतच चालला आहे व माणूस माणुसकीला पारखा होत चालला आहे. साहित्याच्या अभ्यासाने हे थोपविता येऊ शकेल. साहित्य माणसाचे जीवनाच्या गुंतागुंतीविषयीचे आकलन वाढविते व त्याला अधिक चांगला नागरिक, सुसंस्कृत माणूस बनविण्यास हातभार लावते. त्याला दुसऱ्याच्या भावना जाणून घेणारी सदय, सहिष्णू व्यक्ती बनविते. शिक्षण प्रक्रियेचे अंतिम साध्य किंवा ध्येय माणसाचे व्यक्तिमत्त्व घडविणे, सुसंस्कृत माणूस निर्माण करणे हेच असते. साहित्याचा अभ्यास या दृष्टीने अनन्यसाधारण महत्त्वाचा ठरतो.

प्रचलित अभ्यासक्रमात कला शाखेच्या विद्यार्थ्यांना पदवीसाठी 'मराठी साहित्य' हा विषय अभ्यासता येतो. अकरावी-बारावीच्या स्तरावर या विषयाची पूर्वतयारी झाल्यास त्यांना सोयीचे होईल. वाणिज्य व विज्ञान शाखांच्या विद्यार्थ्यांना मात्र पुढील वर्षांमध्ये मराठी साहित्याच्या अभ्यासाची संधी उपलब्ध नसते. या शाखांमध्ये शिकणाऱ्या अनेक विद्यार्थ्यांना मराठी साहित्यात रस असतो. पुढील आयुष्यात 'रसिक वाचक' म्हणून जडणघडण होण्यासाठी त्यांना या स्तरावर मराठी साहित्याचा पायाभूत अभ्यास खूपच मोलाचा ठरेल, अशी धारणा आहे.

#### उद्दिष्टे :

१. साहित्य म्हणजे काय, साहित्याची भाषा कशी असते? त्याची ओळख करून देणे.
२. साहित्यातील संकल्पना स्पष्ट करणे.
३. समीक्षेची तत्त्वे स्पष्ट करणे.
४. साहित्यप्रकारांचा सखोल परिचय करून देणे.
५. आकलन, विश्लेषण, अर्थनिर्णयन, मूल्यमापन या क्रमाने अभ्यासाची पद्धत समजावून देणे.
६. विद्यार्थ्यांच्या स्वतंत्र लेखनक्षमतेचा विकास करणे.
७. विद्यार्थ्यांची आकलनशक्ती व वैचारिक क्षमता वाढविणे.
८. सुसंस्कृत व उदार विचारसरणीचा माणूस घडविणे.

#### ब. सदर विषयाची अंमलबजावणी पुढीलप्रमाणे-

१. 'मराठी साहित्य' हा विषय वैकल्पिक म्हणून कला, वाणिज्य, विज्ञान शाखेतील विद्यार्थी घेऊ शकतील.
२. एकाच वेळेस विद्यार्थी 'मराठी' व 'मराठी साहित्य' हे दोन्ही विषय घेऊ शकतील.
३. 'मराठी साहित्य' हा विषय शिकविण्यासाठी शिक्षकांची किमान अर्हता एम.ए. (संपूर्ण मराठी) ही असावी.
४. 'मराठी साहित्य' या विषयासाठी तोंडी परीक्षा नसेल. तीएवजी विद्यार्थी वीस गुणांकरिता दीर्घ निबंध (सुमारे २५ ते ३० पृष्ठे) लिहितील. ऐंशी गुणांकरिता लेखी परीक्षा असेल.



## इयत्ता अकरावी

### भाग १: साहित्याचा अभ्यास

- १) साहित्याचे वाचन व साहित्याचा अभ्यास
- २) साहित्याचा अभ्यास का करावयाचा ?
- ३) साहित्य व इतर ललित कलांचा परस्परसंबंध
- ४) साहित्याची भाषा (अलंकार, प्रतिमा, प्रतिके इ.)
- ५) साहित्याच्या अभ्यासातील संज्ञा व संकल्पना

### भाग २ : सूक्ष्म वाचन

- १) कविता - (सुमारे ४०० ओळी -सुमारे २० कविता)  
प्रामुख्याने आधुनिक कविता, नवकविता व साठोत्तरी कविता.
- २) कथा - ५ लघुकथा - सुमारे ४० पाने
- ३) निबंध - २ वैचारिक, २ ललित- सुमारे १५ पाने
- ४) एकांक/एकांकिका - सुमारे १५ पाने  
(भाग १ व भाग २ साठी पाठ्यपुस्तक तयार केले जाईल.)

### भाग २ : स्थूल वाचन

- १) एक लघुकादंबरी किंवा
- २) एक प्रवासवर्णन  
(शिफारस केली जाईल.)

## इयत्ता बारावी

### भाग १: मराठी साहित्याचा अभ्यास

- १) मराठीतील विभिन्न साहित्यप्रकार
- २) साहित्यकृतीचा अभ्यास व साहित्यकृतीची भाषा (उदा. कविता, नाटक, कादंबरी इ.)
- ३) साहित्याची समीक्षा व समीक्षेच्या विविध पद्धती सामाजिक - सांस्कृतिक चळवळी व मराठी साहित्य

### भाग २: सूक्ष्म वाचन

- १) कविता -  
सुमारे २० कविता - अभंग, ओवी, लावणी, पोवाडा, भारूड, गवळण, भूपाळी, फटका, सुनीत, गझल, हायकू.
- २) कथा -  
सुमारे ४० पाने - दोन दीर्घकथा
- ३) ललित गद्य -  
सुमारे २० पाने - प्रवासवर्णन, व्यक्तिचित्रण इ.
- ४) आत्मचरित्रातील उतारे -  
सुमारे २० पाने  
(भाग १ व भाग २ साठी पाठ्यपुस्तक तयार केले जाईल.)

### भाग २: स्थूल वाचन

- १) एका लेखकाचा एक वैचारिक लेखसंग्रह किंवा
- २) एक नाटक  
(शिफारस केली जाईल.)

### शिकविण्याचे तंत्र व पद्धती

राष्ट्रीय व आंतरराष्ट्रीय स्तरावर साहित्याच्या अध्यापनपद्धतीत झालेले बदल व शासनाचे धोरण विचार करता, शिक्षक - विद्यार्थी आंतरक्रिया व सुसंवाद घडेल, अशा पद्धतीने वर्ग चालावा, अशी शिफारस आहे.

- १) अभ्यासक्रमाच्या आकलनास मदत होईल, अशा प्रकारे विद्यार्थ्यांना बोलण्यास व लिहिण्यास उद्युक्त करणे.
- २) विद्यार्थ्यांना गट करून समीक्षण, रसग्रहण करण्यास सांगणे.
- ३) दृकश्राव्य माध्यमांचा उपयोग करून एकांकिका, नाटक इ. वाङ्मयप्रकारांचा परिचय करून देणे.

### शिकविण्याचे तंत्र व पद्धती

- १) दीर्घोत्तरी प्रश्न विचारले जातील. वस्तुनिष्ठ किंवा लघूत्तरी प्रश्न विचारण्यात येणार नाहीत..
- २) निव्वळ स्मरणशक्तीची परीक्षा करण्याच्या दृष्टीने प्रश्न विचारले जाणार नाहीत.
- ३) विद्यार्थ्यांना लेखनस्वातंत्र्य दिले जाईल.  
उदा. तुम्हाला आवडलेल्या एकांकिकेचे समीक्षण करा.  
किंवा  
तुम्हाला न आवडलेल्या कवितेचे विश्लेषण करा.



## हिंदी (व्यावहारिक हिंदी)

### प्रस्तावना

वर्तमान युग सूचना प्रौद्योगिकी का युग है। आज संपूर्ण संसार एक होता जा रहा है। अतः संप्रेषण हेतु भाषा का महत्व बढ़ रहा है। हिंदी संपर्क भाषा है अतः संचार के विविध क्षेत्रों में हिंदी की भाषिक प्रयुक्तियाँ महत्वपूर्ण होती जा रही हैं। उच्च माध्यमिक कक्षाओं के छात्रों को उनसे परिचित कराने की दृष्टि से प्रस्तुत पाठ्यक्रम तैयार किया गया है।

### पाठ्यक्रम के उद्देश

१. श्रवण, भाषण, पठन एवं लेखन क्षमताओं का विकास करना।
२. आकलन एवं विचार-विनिमय करने की क्षमता का विकास करना।
३. रेडियो, दूरदर्शन, विविध चैनल्स समाचार पत्र, पत्रिकाएँ, विज्ञापन माध्यम आदि में प्रयुक्त लिखित, मौखिक भाषा से परिचित करना।
४. विविध सरकारी स्वायत्त संस्थाओं में प्रयुक्त विशिष्ट पारिभाषिक शब्दावली से परिचित कराना।
५. कार्यालयीन एवं व्यावसायिक पत्राचार से परिचित कराना।
६. पत्रकारिता के विविध रूपों से परिचित कराना।
७. कंप्यूटर की जानकारी देना।
८. अनुवाद के लिए प्रेरित करना।
९. विज्ञापनों की भाषिक प्रयुक्ति की जानकारी देना।
१०. संभाषण कौशल विकसित करना आदि.....

### कक्षा ग्यारहवीं

#### पाठ्यक्रम

- १) हिंदी भाषा का स्वरूप - हिंदी भाषा का संक्षिप्त इतिहास हिंदी का संवैधानिक रूप- राष्ट्रभाषा, राजभाषा
- २) मानक लेखन- मानक वर्तनी, देवनागरी लिपि वर्ण एवं आंतरराष्ट्रीय अंक लेखन
- ३) पारिभाषिक शब्दावली - सरकारी कार्यालयों में प्रयुक्त शब्द, विधी, बैंक, वाणिज्य, विज्ञान आदि क्षेत्रोंसे

संबंधित प्रत्येकी ५० शब्द- अथवा व्यवहारोपयोगी संवाद तथा जानकारी

- ४) अनुवाद - स्वरूप, प्रक्रिया, प्रकार। अंग्रेजी से हिंदी में अनुवाद (एक या दो परिच्छेद)
- ५) विज्ञापन - स्वरूप, आवश्यकता, प्रकार। विज्ञापनोंकी हिंदी।
- ६) पत्राचार- सरकारी पत्र-६ व्यावसायिक पत्र -४
- ७) व्यावहारिक हिंदी- सामान्य व्यवहार में प्रयुक्त शब्द (संपादक मंडळ निमंत्रक के साथ विचार-विमर्श करके पाठ्यक्रम में संशोधन कर सकता है।)

### कक्षा बारहवीं

#### पाठ्यक्रम

- १) पत्रकारिता का स्वरूप - हिंदी पत्रकारिता के विविध रूप- प्रिंट मीडिया (समाचार पत्र), रेडियो की पत्रकारिता, दूरदर्शन की पत्रकारिता
- २) जनसंचार माध्यम - स्वरूप, कार्य, उद्देश
- ३) जनसंचार माध्यमों के विविध हिंदी भाषा रूप - समाचार की भाषा, विज्ञापन की भाषा, कृषि तथा बच्चों के कार्यक्रम की भाषा।
- ४) हिंदी से संबंधित तकनीकी ज्ञान - कंप्यूटर, एम.एस. वर्ड, डी.टी.पी., इंटरनेट, वेबसाईट, ई-कॉमर्स आदि की प्राथमिक जानकारी -अथवा संबंधित विषय पर आधारित संवाद
- ५) पारिभाषिक शब्दावली- सरकारी, अर्धसरकारी, विविध संस्थाओं में प्रयुक्त पारिभाषिक शब्दावली -प्रत्येकी लगभग ५० शब्द
- ६) पत्राचार- सरकारी पत्र-६ व्यावसायिक पत्र -४ (संपादक मंडळ निमंत्रक के साथ विचार-विमर्श करके पाठ्यक्रम में संशोधन कर सकता है।)



## English Literature (22)

### Introduction

The Maharashtra State Board of Secondary and Higher Secondary Education has taken a decision of introducing an optional course of English at the higher secondary level w.e.f. June 2009. The present course of English (Compulsory) will continue with no change. The optional course is being introduced for students who want to study English as literature. The title of the course will be English Literature. Any student of Std. XI/XII who desires to study English literature, can offer this course, in addition to the present course of English (Compulsory)

'Literature' occupies an important place in the lives of all human beings. Literary study helps in developing language skills and also in developing understanding of human life. It broadens our vision, sharpens our sensibilities and helps in our overall development as human beings.

This course will help students in understanding what literature is, why we should study literature and how we should study literature. The course will also help students in developing their understanding of literature as communication.

### Objectives

#### To enable the student

- to read and appreciate literature as a unique form of communication
- to acquaint himself/herself with major forms of literary writing.

- to develop creativity in writing.
- to enhance literary sensibility and critical thinking.
- to understand literature in all its perspectives: literature as language, literature as experience, literature as communication/discourse.
- to develop humanistic and broad outlook.

### Std. XI

#### Part one: Introduction to the Study of English Literature

- i) 'Reading' and 'Studying' Literature
- ii) Why should we study literature?
- iii) How should we study literature?
- iv) Terms used in literary studies.

#### Part Two: Detailed Reading

- i) Poems: (About 400 lines) Number of poems about 20. Poems should be both Classical and Modern.
- ii) Short stories: About 8 stories. About 60 pages.
- iii) Essays: about 4 essay. About 20 pages.
- iv) One Act Play: About 10 pages.
- v) Biographical pieces: About two pieces. About 10 pages.

(A Coursebook will be prepared by the Board for Part One and Part Two)

#### Part Three: Non-detailed reading

- i) A short novel (British or Indian)
- ii) A Play (The Board will prescribe books for Part Three)



## Std. XII

### Part one: Introduction to the Study of English Literature

- i) Literature as language
- ii) Literature as experience
- iii) Literary communication and non-literary communication
- iv) Literature as discourse.

### Part Two: Detailed Reading

- i) Poems: (About 400 lines) Number of poems about 20. Poems should be both Classical and Modern.
- ii) Short stories: About 8 stories. About 60 pages.
- iii) Essays: about 4 essay. About 20 pages.
- iv) One Act Play: About 10 pages.
- v) Biographical pieces: About two pieces. About 10 pages.

(A Coursebook will be prepared by the Board for Part One and Part Two)

### Part Three: Non-detailed reading

- i) A short novel (British or Indian)
- ii) A Play (The Board will prescribe books for Part Three)

## Methods and Techniques of Teaching

Considering the changes in methods and techniques of teaching literature at the international levels and the policy of the Government of India, 'Interactive' approach to teaching' will have to be adopted. Following methods and techniques of teaching will be recommended.

- i) 'Participative learning' involving students in the process, encouraging teacher-student interaction, involving pair/group work.
- ii) Activities/Tasks that will help sharpen students' creative ability and critical thinking.
- iii) A task based methodology with a learner centred approach.
- iv) Promotion of the use of Audio-visual materials, CDs, short films, project work, review of literary texts.

## Testing and Evaluation

The testing framework will be 'performance oriented', 'application oriented' and NOT memory based. There will be no scope for rote learning. Creativity, critical and independent thinking will be given credit.



**1. A MODERN INDIAN LANGUAGE**

(Any one other than one offered under compulsory subjects)

The syllabus in these languages will be the same as that for Modern Indian Languages under compulsory languages.

**2. A MODERN FOREIGN LANGUAGE.**

(Any one other than one offered under compulsory subjects)

The syllabus in these languages will be the same as that for Modern Foreign Languages under compulsory subjects.

**3. A CLASSICAL LANGUAGE**

(Any one other than one offered under compulsory subjects)

The syllabus in these languages will be the same as that for Classical Languages under compulsory subjects.



## History (38)

According to new Education Policy it is essential to give vast knowledge of History of Maharashtra in Std. XI and of the new approach to study the history in Std.XII.

Therefore, students are to be made familiar with their subject matter and also gain profound knowledge of History.

In Standard XI they study events and movements that helps to create participation in all walks of life. In Standard XII the study of Applied History in 21<sup>st</sup> century entertainment and mass media will give them some brainwave so that they can understand that history is not only study of past but also present and future. It also gives ample opportunity for creativity. This subject also draws us from darkness to light. In the study of this subject students also develop some leadership qualities. Hence, it lays a strong foundation of modern India by creating amicable relationship among us.

### Objectives

- 1) To widen and make comprehensive and innovative attitude of students towards history.
- 2) To appropriately relate the events of the past with the present in order to march towards a bright future.
- 3) To inculcate the spirit of curiosity and analytical reasoning in students and build their characters free from prejudices, dictatorial tendencies and communalism and to build in them scientific attitude combined with foresight.
- 4) To develop a comprehensive historical perspective in order to understand contemporary world, universal

brotherhood, human rights, international understanding and the challenges of globalization.

- 5) To maintain the spirit of religious equality.
- 6) To create awareness about the protection of environment.
- 7) To build an awareness regarding the preservation of historical monuments and resources.
- 8) To create awareness about the empowerment of the weaker sections in the society and women.
- 9) To inculcate the values of unbiased nationalism, nutritional integration, democracy and socialism, etc. in students.
- 10) To enable students to make man humanitarian and community oriented through individual, social, moral and universal values.

### Std. XI

#### Unit 1 Background of Maharashtra:

- a) Ancient Maharashtra : Stone Age, Satvahana, Vakataka, Chalukya, Rashtrakutan, ----- Dyna----- and their political, social, cultural, religious contribution.
- b) Medieval Maharashtra Political – Social – Economic, Religious
  - 1) Yadav
  - 2) Sultanate
  - 3) Mughal
  - 4) Maratha

#### Unit 2 Renaissance in 19<sup>th</sup> century :

Religious and Social Reform movements



- Unit 3 Contribution of Maharashtra to Freedom Movement :**
- 1818 to 1885
  - 1885 to 1920
  - 1920 to 1947
- Unit 4 Equality Movements in Maharashtra :**  
Background of Movements
- Labour
  - Dalit
  - Women
  - Adivasi (Tribal)
- Unit 5 Post Independence Maharashtra 1947 to 1960 :**
- Sanyukta Maharashtra Movement
  - Marathwada Mukti Sangram
- Unit 6 Progress of Maharashtra 1960-2000 :**  
Political, Economical, Educational, Social and Cultural progress
- Unit 3 Entertainment Media and History**
- Radio
  - Television
  - Drama
  - Cinema
- Unit 4 Tourism and History**
- Tourist Guides
  - Preservation of Historical Monuments
- Unit 5 Museums**
- Significance and conservation
  - Archaeological Artifacts and Sculptures
  - Inscriptions and Numismatics
  - Available job opportunities
- Unit 6 Historical Research**
- Archaeological
  - Archives
- Unit 7 Encyclopedia**
- Treasures of History
  - Encyclopedia
  - Biographies
  - Dictionary of Culture
- Unit 8 Administrative Services**
- State Government Service Examination
  - Central Government Service Examination
  - Interview Techniques
- Unit 9 History Teacher and Teaching**
- Educational qualifications
  - Personality

## Std. XII

- Unit 1 Applied History in 21<sup>st</sup> Century**
- Meaning of Applied History
  - Inter – relation of Past and Present
  - Contemporary History
- Unit 2 Mass Media and History**
- Printing Press
  - Newspapers
  - Periodicals
  - Electronic Media



## Geography (39)

### Introduction

The 10+2 stage in the educational pattern is an important link in the chain of curricular work, where in it is insisted that the students should switch off for the branch of knowledge best suited for them, on the basis of the foundations laid in the first 10 years of schooling, devoted to general education. Accordingly, it would be necessary at this stage to broaden and deepen the students basic knowledge in geography, so that it may develop a keen and profound interest in the subject that is so useful in their everyday life as well as in their areas of specialization. Moreover, geography being a subject of interdisciplinary nature, it helps in the study of natural sciences and social sciences.

The course is based on the guidelines provided in NCF2005 and SCF 2010. Core elements such as protection of environment and inculcation of scientific temper as mentioned in NPE and POA have also been reflected in the course content of geography. The theoretical study of geography is complemented by practical work have been made a part of curriculum for 10+2 stage.

For 10+2, the geography course has complements of theory and practical work. The course is designed in such a way that students will be acquiring knowledge of the world as a whole with the new technologies the world is shrinking and new patterns of regional co-operations are emerging. At the same time world as a whole is facing problems like, global warming and climate changes. Different regions in the world having varied

physiographic and social personalities are expected to respond to these global problems in different ways. Hence, it is necessary that the students understand the strengths and weaknesses of each region to face these problems.

Though regions have different personalities, none remains in isolation and they complement each other in different ways.

With the study of world as an entity and understanding the problems, will promote students to accept the concept of world as a home of man and to realize the need for conserving their home.

Field visits and practical work will be useful in developing necessary geographical skills.

### Objective

**The course in Geography will help learners to**

1. understand the terms, key concepts and basic principles of Geography.
2. recognize and understand the processes and patterns of the spatial arrangement of natural as well as human features and phenomena on the earth's surface.
3. understand and analyse the inter-relationship between physical and human environment and their impact.
4. know about the scarcity of minerals and power resources and to understand the importance of its conservation and use of non-conventional power resources.
5. understand the causes of environmental pollution and its impact on life on the earth.



6. apply geographical knowledge and method of enquiry to new situations or problems at different levels : local, regional, national and global.
7. understand major types of human activities as influenced by geographical factors.
  1. develop geographical skills relating to collection, processing and analysis of data or information including graphics and use of computers wherever possible and preparation of a report.
  2. understand the effects of natural hazards and prepare them to help the affected persons.

### **Std. XI**

#### **World Geography – Physical**

##### **Unit 1: Physiography**

- 1.1 Mountains
- 1.2 Plateaus
- 1.3 Plains

##### **Unit 2: Movements of the earth**

- 2.1 Rocks
- 2.2 Earthquakes
- 2.2 Volcanoes

##### **Unit 3: Climate**

- 3.1 Temperature
- 3.2 Pressure
- 3.3 Precipitation

##### **Unit 4: Drainage System & Water resources**

- 4.1 Main rivers
- 4.2 Lakes
- 4.3 Availability of water
- 4.4 Usage
- 4.5 Water scarcity

##### **Unit 5: Oceans & Marine eco system**

- 5.1 Structure of ocean floor

- 5.2 Archipelago group of Island
- 5.3 Marine eco system
- 5.4 Ocean resources

##### **Unit 6: Natural Vegetation**

- 6.1 Distribution
- 6.2 Importance of forests
- 6.3 Deforestation

##### **Unit 7: Biomes and Biodiversity**

- 7.1 Types of Biomes
- 7.2 Biodiversity

##### **Unit 8 : Disaster**

- 8.1 Natural disaster
- 8.2 Manmade disaster

#### **Practicals**

##### **Unit 1: Projection**

- 1.1 Types of projection

##### **Unit 2: Methods of representing relief features & Slopes on a map**

##### **Unit 3: Topographical Map**

- 3.1 Map reading ( 1:50,000)

##### **Unit 4 : Remote Sensing – Aerial Photographs**

##### **Unit 5: Weather Charts**

- 5.1 Reading
- 5.2 Weather instruments

##### **Unit 6: Field study**

### **Std. XII**

#### **Geography of World – Human**

##### **Unit 1 : Population**

- 1.1 Growth, density, distribution
- 1.2 Sex ratio Literacy
- 1.3 Race, religion and Language

##### **Unit 2 : Migration**

- 2.1 Migration

##### **Unit 3 : Agriculture**

- 3.1 Types of agriculture
- 3.2 Crop distribution



**Unit 4 : Minerals and energy resources**

4.1 Distribution

**Unit 5 : Industries**

5.1 Agro-based

5.2 Mineral based

5.3 Other industries

5.4 Distribution

**Unit 6 : Trade**

6.1 International trade

6.2 International trade organisation

**Unit 7 : Transportation and Communications**

7.1 Types of Transportation

7.2 Modes of Communications

**Unit 8 : Economic developments**

8.1 Global situation

8.2 Human development

**Geography : Practical - Part II :****Unit 1 : Map Scale**

Types

**Unit 2 : Graphs**

2.1 Line graph

2.2 Bar graph

2.3 Two dimensional diagrams

2.4 Three dimensional diagrams

**Unit 3 : Thematic Maps**

3.1 Distributional map

**Unit 4 : Surveying**

4.1 Chain and Tape survey

4.2 Plane Table



## Mathematics & Statistics (40)

### (For Arts and Science)

#### Std. XI & XII

### Introduction

Mathematics is the language of all sciences and is perhaps the only subject which merits this distinction. Mathematics is the backbone of all sciences and it is an inseparable part of human life.

Higher Secondary is a launching stage from where students would go to either for academic education in Mathematics or professional courses like Engineering and Computer Technology, Physical and Biological Sciences. Hence to fulfil the needs of students, it is utmost important to make the study of Mathematics more meaningful by acquainting the student with many branches of mathematics. This will help them in developing Mathematical tools to be used in the professional education. Apart from motivating topics from real life situations and other subject areas, major thrust is also on application of various concepts.

The proposed syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics 2005 which is to meet the emerging needs of all categories of students.

### Objectives

#### To enable the students

1) to acquire knowledge and critical understanding, particularly by way of motivation and visualization of basic concepts, terms, principles, symbols and

mastering the underlying processes and skills.

- 2) to apply the knowledge and skills in Mathematics and related problems from other subjects, by more than one method.
- 3) to develop positive attitude to think, analyze and articulate logically.
- 4) to develop interest in Mathematics by participating in various related competitions and self-learning.
- 5) to acquaint students with different aspects of Mathematics used in real life.
- 6) to develop an interest in students to study Mathematics as a discipline.
- 7) to develop awareness of the need for national integration, protection of an environment, removal of social barriers, elimination of sex biases and observance of small family norm.
- 8) to develop reverence and respect towards great mathematicians for their contribution to the field of Mathematics.
- 9) to develop interest in the subject by participating in related competitions.

### Std. XI - PART – 1

#### 1. Measurement of Angles

Need & concept, Revision of directed angle (+ve and -ve angles), zero angle, straight angle, angles in standard position, coterminal angles, angles in quadrant &



quadrantal angles. Sexagesimal system, circular system, relation between degree measure and radian measure. **Theorem:** Radian is a constant angle. Length of an arc of a circle ( $s = r \cdot \theta$ ,  $\theta$  is in radians) (without proof). Area of the sector of a circle  $A = \frac{1}{2} r^2 \cdot \theta$ ,  $\theta$  is in radians (without proof).

## 2. Trigonometric functions

Need & concept, Trigonometric functions with the help of standard unit circle, signs of trigonometric functions in different quadrants, trigonometric functions of particular angles ( $0^\circ$ ,  $30^\circ$ ,  $45^\circ$ ,  $60^\circ$ ,  $90^\circ$ ,  $180^\circ$ ,  $270^\circ$ ,  $360^\circ$ ), domain and range of trigonometric functions, periodicity of functions, fundamental identities, graphs of trigonometric functions, Graph of  $y = a \sin bx$ ,  $y = a \cos bx$ , trigonometric functions of negative angles.

## 3. Trigonometric functions of compound angles

Introduction, trigonometric functions of sum and difference, trigonometric functions of multiple angles (upto double and triple angles only), trigonometric functions of half angles.

## 4. Factorization Formulae

Introduction, Formulae for conversion of sum or difference into products, formulae for conversion of product into sum or difference, trigonometric functions of angles of a triangle.

## 5. Locus

Introduction, Definition and equation of locus, points of locus, shift of the origin.

## 6. Straight Line

Revision. Inclination of a line, slope of a line, equation of lines parallel to co-

ordinate axes, intercepts of a line, revision of different forms of equations of a line, slope-point form, slope-intercept form, two point form, double intercept form, other forms of equations of a line, parametric form, normal form, general form, **Theorem 1** : A general linear equation  $Ax + By + C = 0$ , provided A and B are not both zero, simultaneously, always represents straight line. **Theorem 2** : Every straight line has an equation of the form  $Ax + By + C = 0$ , where A, B and C are constants (without proof), Reduction of general equation of a line into normal form, intersection of two lines, parallel lines, perpendicular lines, identical lines, condition for concurrency of three lines, angle between lines, distance of a point from a line, distance between two parallel lines, equations of bisectors of angle between two lines, family of lines, equation of a straight line parallel to a given line, equation of a straight line perpendicular to a given line, equation of family of lines through the intersection of two lines.

**7. Circle and Conics** : Revision, standard equation, centre-radius form, diameter form, general equation, parametric equations of standard equation, Conics Napees – Intersection of Napees of a cone and Plane, introduction, focus-directrix property of parabola, ellipse, hyperbola, parabola, standard equation (different forms of parabola), parametric equations, ellipse, standard equation, hyperbola, standard equation, parametric equations. Application of conic section.

## 8. Vectors

Definition, magnitude of a vector, free



and localized vectors, types of vectors, zero vector, unit vector, equality of vectors, negative of a vector, collinear vectors, coplanar vectors, coinitial vectors, like and unlike vectors, scalar multiple of a vector, triangle law, parallelogram law, polygon law, properties of addition of vectors, three dimensional co-ordinate geometry, co-ordinate axes & coordinate planes in space, co-ordinates of a point in space, distance between two points in a space, unit vectors along axes, position vector of a point in a space, product of vectors, scalar product, definition, properties, vector product, definition, properties, simple applications, work done by force, resolved part of a force, moment of a force.

### 9. Linear Inequations

Linear inequations in one variable – solution of linear inequation in one variable & graphical solution, solutions of system of linear inequations in one variable, Linear inequations in two variables – solution of linear inequation in one variable & graphical solution, solution of linear inequations in two variables & graphical solution, solutions of system of linear inequations in two variables, Replacement of a set or domain of a set, Transposition.

### 10. Determinants

Revision, determinant of order three, definition, expansion, properties of determinants, minors & co-factors, applications of determinants, condition of consistency, area of a triangle, Cramer's rule for system of equations in three variables.

### 11. Matrices

Introduction, concepts, notations, order,

types of matrices – zero matrix, row matrix, column matrix, square matrix, determinant of a square matrix, diagonal matrix, scalar matrix, identity matrix, triangular matrices, singular & non-singular matrices, transpose of a matrix, symmetric & skew symmetric matrices, operations on matrices – equality, addition, subtraction, multiplication of a matrix by a scalar, simple properties, multiplication of matrices – definition, properties of matrix multiplication, properties of transpose of a matrix -  $(A')' = A$ ,  $(KA)' = KA'$ ,  $(AB)' = B'A'$ .

## PART – 2

### 1. Sets, Relations and Functions

Set – Revision, subset, proper improper subset and their properties, union, intersection, disjoint sets, empty set, finite & infinite sets, equal sets, equivalent sets, universal set, Venn diagrams, complement of a set, difference of two sets, power set, Relations – ordered pairs, equality of ordered pairs, Cartesian product of two sets, No. of elements in the Cartesian product of two finite sets, Cartesian product of the reals with itself, definition of relation, pictorial diagrams, domain, codomain and range of a relation, types of relations, one-one, many-one, binary equivalence relation, functions – function as a special kind of relation, pictorial representation of a function, domain, codomain and range of a function, equal functions, types of functions - constant function, identity function, one-one function, onto function, into function, even & odd functions, polynomial function, rational function, modulus function,



signum & greatest integer, exponential function, logarithmic function, functions with their graphs, sum, difference, product, quotient of functions, scalar multiplication, composite function, inverse function, binary operations, real valued function of the real variable, domain and range of these functions.

## 2. Logarithms

Introduction, definition, properties, laws of logarithms, change of base, characteristics & mantissa – method of finding characteristics, method of finding mantissa, method of finding antilogarithm.

## 3. Complex Numbers

Introduction, need for complex numbers, definitions – (real parts, imaginary parts, complex conjugates, modulus, argument), algebra of complex numbers – equality, addition, subtraction, multiplication, division, powers and square root of a complex number, higher powers of  $i$ , DeMoivre's formula – (without proof), square root of a complex number, properties of complex numbers – properties of addition of complex numbers, 1) Closure Property 2) Commutative Law 3) Associative law 4) Existence of additive identity 5) Existence of additive inverse. Properties of product of complex numbers – Existence of multiplicative identity – Existence of multiplicative inverse, properties of conjugate & modulus of complex numbers, Argand Diagram – representation of a complex number as a point in plane, geometrical meaning of modulus and argument, polar representation of complex numbers, Fundamental theorem of algebra, cube

roots of unity – solution of quadratic equations in the complex number system, cube roots of unity.

## 4. Sequences & Series

Revision - sequence, A.P., Sum of first  $n$  terms of A.P., properties of A.P., geometric progression – introduction, general term, sum of the first ' $n$ ' terms, ( $n$  terms from the end of G.P.) containing finitely many terms & sum to infinite terms, properties of G.P., H.P. as a special type of A.P., Means – arithmetic mean, geometric mean, harmonic mean, relation between A.M., G.M., H.M., Arithmetico-Geometric sequence, special series, sum of cube of first  $n$  natural numbers, sum of cube of first  $n$  odd natural nos., exponential & logarithmic series.

## 5. Permutations & combinations

Introduction, fundamental principle of counting, factorial notation, permutations, when all  $r$  objects are distinct, when all  $r$  objects are not distinct, circular permutations, simple applications, combinations – definition, properties, relations between permutations and combinations, simple applications.

## 6. Mathematical Induction and Binomial Theorem

Principle of mathematical induction, simple applications, binomial theorem – binomial theorem for positive integers, general term, particular term, properties of binomial coefficient with simple application, binomial theorem for any index (without proof), particular cases of binomial theorem, simple applications.

## 7. Limits

Introduction of concept, meaning of  $x \rightarrow a$ ,



the limit of a function, fundamental theorem on limits, algebra of limits – standard limits, without proof, limits at infinity – concepts, simple problems.

### 8. Differentiation

Definition : derivative, derivative at a point, geometrical significance of derivative, physical significance (velocity as a rate of change of displacement), derivatives from first principle - of trigonometric functions, logarithmic functions, algebraic functions, exponential functions, rules of differentiation – derivative of sum, difference, product and quotient.

### 9. Integration

Definition of integration as antiderivative, geometrical interpretation of indefinite integrals, algebra of integrals – integrals of some standard functions, rules of integration.

### 10. Statistics

Measures of dispersion – range, quartile & quartile deviation (for grouped and ungrouped data), comparison of two frequency distributions with same mean, mean deviation about mean, mean deviation about median (for grouped & ungrouped data), variance, standard deviation, effect of change of origin and scale on variance and standard deviation, combined variance and standard deviation, co-efficient of variation.

### 11. Probability

Revision, types of events – events and algebra of events, axiomatic definition of probability, mutually exclusive and exhaustive events, mutually exclusive events, addition theorem – for any two events A and B, Result on complementary

events. Conditional probability – definition, multiplication theorem, independent events, Baye's theorem, odds in favour and against.

### List of Practicals: XI

1. Problems on locus.
2. Family of lines.
3. Tracing of Conics I.
4. Tracing of Conics II.
5. Applications of vectors (Dot and cross product).
6. Linear inequation.
7. Applications of determinants.
8. Algebra of matrices.
9. Tracing of graphs of functions.
10. Numerical problems using laws of logarithms.
11. Power and square root of a complex number, cube root of unity.
12. Examples on special series.
13. Permutations and combinations.
14. Mathematical induction.
15. Binomial theorem.
16. Limits.
17. Differentiation.
18. Integration.
19. Measures of dispersion.
20. Probability.

## Std. XII : PART – 1

### 1. Mathematical Logic

Statements - Introduction, sentences and statement, truth value of statement, open sentences, compound statement, quantifier and quantified statements, logical connectives : conjunction, disjunction, negation, implication/ conditional,



biconditional, truth tables of compound statements, examples related to real life and mathematics, statement patterns and logical equivalence - tautology, contradiction, contingency, duality, negation of compound statement, contrapositive, converse, inverse, algebra of statements-idempotent law, associative law, commutative law, distributive law, identity law, complement law, involution law, DeMorgan's laws, difference between converse, contrapositive, contradiction, application-introduction to switching circuits (simple examples).

## 2. Matrices

Elementary transformation of a matrix-revision of cofactor and minor, elementary row transformation, elementary column transformation, inverse of a matrix-existence and uniqueness of inverse of a matrix, inverse by elementary transformation, adjoint method, application-solution of system of linear equations by – reduction method, inversion method.

## 3. Trigonometric functions

Trigonometric equations-general solution of trigonometric equation of the type :  $\sin\theta = 0$ ,  $\cos\theta = 0$ ,  $\tan\theta = 0$ ,  $\sin\theta = \sin\alpha$ ,  $\cos\theta = \cos\alpha$ ,  $\tan\theta = \tan\alpha$ ,  $\sin^2\theta = \sin^2\alpha$ ,  $\cos^2\theta = \cos^2\alpha$ ,  $\tan^2\theta = \tan^2\alpha$ ,  $a\cos\theta + b\sin\theta = C$  solution of a triangle : polar coordinates, sine rule, cosine rule, projection rule, area of a triangle, application, Hero's formula, Napier Analogues, inverse trigonometric functions-definitions, domain, range, principle values, graphs of inverse

trigonometric function, properties of inverse functions.

## 4. Pair of straight lines

Pair of lines passing through origin-combined equation, homogenous equation, theorem-the joint equation of a pair of lines passing through origin and its converse, acute angle between the lines represented by  $ax^2+2hxy+by^2=0$ , condition for parallel lines, condition for perpendicular lines, pair of lines not passing through origin-combined equation of any two lines, condition that the equation  $ax^2+2hxy+by^2+2gx+2fy+c=0$  should represent a pair of lines (without proof), acute angle between the lines (without proof), condition of parallel and perpendicular lines, point of intersection of two lines.

## 5. Circle

Tangent of a circle-equation of a tangent at a point to 1) standard circle,2) general circle, condition of tangency only for line  $y = mx + c$  to the circle  $x^2 + y^2 = a^2$ , tangents to a circle from a point outside the circle, director circle, length of tangent segments, normal to a circle-equation of normal at a point.

## 6. Conics

Tangents and normals-equations of tangent and normal at a point for parabola, ellipse, hyperbola; condition of tangency for parabola; ellipse, hyperbola; tangents in terms of slope for parabola, ellipse, hyperbola, tangents from a point outside conics, locus of points from which two tangents are mutually perpendicular, properties of tangents and normals to conics (without proof).



**7. Vectors**

Revision, Collinearity and coplanarity of vectors : linear combination of vectors, condition of collinearity of two vectors, conditions of coplanarity of three vectors, section formula : section formula for internal and external division, midpoint formula, centroid formula, scalar triple product : definition, formula, properties, geometrical interpretation of scalar triple product, application of vectors to geometry- medians of a triangle are concurrent, altitudes of a triangle are concurrent, angle bisectors of a triangle are concurrent, diagonals of a parallelogram bisect each other and converse, median of trapezium is parallel to the parallel sides and its length is half the sum of parallel sides, angle subtended on a semicircle is right angle.

**8. Three dimensional geometry**

Direction cosines and direction ratios: direction angles, direction cosines, direction ratios, relation between direction ratio and direction cosines, angle between two lines, condition of perpendicular lines.

**9. Line**

Equation of line passing through given point and parallel to given vector, equation of line passing through two given points, distance of a point from a line, distance between two skew lines, distance between two parallel lines (vector approach).

**10. Plane**

Equation of plane in normal form, equation of plane passing through the given point and perpendicular to given vector, equation of plane passing through the given point

and parallel to two given vectors, equation of plane passing through three non-collinear points, equation of plane passing through the intersection of two given planes, angle between two planes, angle between line and plane, condition for the coplanarity of two lines, distance of a point from a plane (vector approach)

**11 Linear programming problems**

Introduction of L.P.P. definition of constraints, objective function, optimization, constraint equations, non-negativity restrictions, feasible and infeasible region, feasible solutions, Mathematical formulation-mathematical formulation of L.P.P. different types of L.P.P. problems, graphical solutions for problem in two variables, optimum feasible solution.

**Std. XII - PART – 2****1. Continuity**

Continuity of a function at a point : left hand limit, right hand limit, definition of continuity of a function at a point, discontinuity of a function, types of discontinuity, algebra of continuous functions, continuity in interval-definition, continuity of some standard functions-polynomial, rational, trigonometric, exponential and logarithmic function.

**2. Differentiation**

Revision- revision of derivative, relationship between continuity and differentiability-left hand derivative and right hand derivative (need and concept), every differentiable function is continuous but converse is not true, Derivative of



composite function-chain rule, derivative of inverse function, derivative of inverse trigonometric function : Derivative of implicit function definition and examples, derivative of parametric function – definition of parametric function , exponential and logarithmic function-derivative of functions which are expressed in one of the following form a) product of functions, b) quotient of functions, c) higher order derivative, second order derivative d)  $[f_{(x)}]^{[g(x)]}$

### 3. Applications of derivative

Geometrical application-tangent and normal at a point, Rolle's theorem, and Mean value theorem and their geometrical interpretation (without proof), derivative as a rate measure-introduction, increasing and decreasing function, approximation (without proof), Maxima and minima-introduction of extrema and extreme values, maxima and minima in a closed interval, first derivative test, second derivative test.

### 4. Integration

Indefinite integrals-methods of integration, substitution method, integrals of the various types, integration by parts (reduction formulae are not expected), integration by partial fraction-factors involving repeated and non-repeated linear factors, non-repeated quadratic factors, definite integral-definite integral as a limit of sum, fundamental theorem of integral calculus (without proof), evaluation of definite integral 1) by substitution, 2) integration by parts, properties of definite integrals.

### 5. Applications of definite integral

Area under the curve : area bounded by curve and axis (simple problems), area bounded by two curves, volume of solid of revolution-volume of solid obtained by revolving the area under the curve about the axis (simple problems).

### 6. Differential equation

Definition-differential equation, order, degree, general solution, particular solution of differential equation, formation of differential equation-formation of differential equation by eliminating arbitrary constants (at most two constants), solution of first order and first degree differential equation-variable separable method, homogeneous differential equation (equation reducible to homogeneous form are not expected), Linear differential equation, applications : population growth, bacterial colony growth, surface area, Newton's laws of cooling, radioactive decay.

### 7. Statistics

Bivariate frequency distribution - bivariate data, tabulation of bivariate data, scatter diagram, covariance of ungrouped data, covariance for bivariate frequency distribution, Karl Pearson's coefficient of correlation.

### 8. Probability distribution

Probability distribution of a random variable-definition of a random variable, discrete and continuous random variable, probability mass function (p.m.f.), probability distribution of a discrete random variable, cumulative probability distribution of a discrete random variable,



expected value, variance and standard deviation of a discrete random variable, probability density function (p.d.f.), distribution function of a continuous random variable.

### 9. Bernoulli trials and Binomial distribution

Definition of Bernoulli trial, conditions for Binomial distribution, binomial distribution (p.m.f.), mean, variance and standard deviation, calculation of probabilities (without proof), Normal distribution : p.d.f., mean, variance and standard deviation, standard normal variable, simple problems (without proof).

### List of Practicals : XII

1. Applications of logic.
2. Inverse of a matrix by adjoint method and hence solution of system of linear equations.
3. Inverse of a matrix by elementary transformation and hence solution of system of linear equations.
4. Solutions of a triangle.
5. Tracing of tangents and normals for circle and parabola.
6. Tracing of tangents and normals for ellipse and hyperbola.
7. Applications of scalar triple product of vectors.
8. Three dimensional geometry - line.
9. Three dimensional geometry - plane.
10. Formations and solutions of LPP.
11. Applications of derivatives (Geometric applications).
12. Applications of derivatives – Rate measure.
13. Applications of derivatives - Maxima and minima
14. Applications of definite integrals - Limit of a sum.
15. Applications of definite integrals - Area.
16. Applications of definite integrals - volume.
17. Applications of differential equations.
18. Bivariate frequency distribution.
19. Expected value, variance and S.D of a random variable.
20. Binomial distribution.



## Mathematics & Statistics (Commerce) (88)

### Introduction

Mathematics is inseparable part of human life and is perhaps the only subject that merits this distinction.

Higher Secondary is a launching stage, from where students may join courses like C.A., I.C.W.A., Computer Science, Information Technology, Actuarial Science, Accounting and Finance, Banking and Insurance etc. Thus, it is utmost important to make the study of Mathematics more meaningful by acquainting the students with many branches of Mathematics. This will help them in developing Mathematical skills and tools as well as statistical techniques required for higher education.

The proposed syllabus has been designed in accordance with National Curriculum Framework – 2005 and as per guidelines given in Focus group on Teaching of Mathematics 2005.

Motivating topics from real life situations and other subject areas as well as major thrust on applications of various concepts is the need for present.

### Objectives

#### To enable students

1. to create an aptitude for Mathematics and Statistics in those who are interested in higher studies.
2. to equip themselves with tools in Mathematics and Statistics that are needed in handling various situations in Commerce.
3. to acquire knowledge, critical understanding of basic concepts, facts,

principles, terms, symbols and mastery of underlying process and skills.

4. to inculcate the positive attitude to think, reason, analyze and articulate logically.
5. to develop awareness for the need for national integration, protection of an environment, observance of small family norms, removal of social barriers, elimination of sex biases.
6. to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.
7. to acquaint the students with emerging trends in Mathematics and Statistics, if possible.

### Std. XI : PART - 1

1. **Sets, Relations and Functions –**
  - 1.1 Review
  - 1.2 Power set and Cartesian Product
  - 1.3 Relations
  - 1.4 Functions
  - 1.5 Operations on functions
  - 1.6 Graphs of functions
2. **Complex Number**
  - 2.1 Definition of complex number -
  - 2.2 Algebra of complex numbers
  - 2.3 Geometrical representation of a complex number
3. **Sequences and Series**
  - 3.1 Revision of A.P.
  - 3.2 Geometric Progression
  - 3.3 Harmonic Progression
  - 3.4 Special Series



- 4. Angle and its measurement**
  - 4.1 Revision
  - 4.2 Measurement of angles
  - 4.3 Systems of measurement of angles
- 5. Trigonometric Functions**
  - 5.1 Trigonometric Functions
  - 5.2 Trigonometric functions of compound angles (All formulae without proof)
  - 5.3 Inverse trigonometric functions
- 6. Plane Co-ordinate Geometry**
  - 6.1 Locus
  - 6.2 Line
- 7. Circle and Conics**
  - 7.1 Circle
  - 7.2 Conics
- 8. Equations –**
  - 8.1 Equations
- 9. Determinants**
  - 9.1 Revision
  - 9.2 Determinant of order 3
  - 9.3 Applications of Determinants
- 10. Limits**
  - 10.1 Standard Limits
- 11. Differentiation –**
  - 11.1 Derivative
  - 11.2 Rules of differentiation
  - 11.3 Derivatives of particular functions
  - 11.4 Derivatives of composite function
- 2.3 Independence of attributes**
- 2.4 Association of attributes**
- 3. Partition Values**
  - 3.1 Partition values
- 4. Measures of Dispersion**
  - 4.1 Measures of Dispersion
- 5. Moments**
  - 5.1 Moments
- 6. Skewness and Kurtosis**
  - 6.1 Skewness
  - 6.2 Kurtosis
- 7. Permutations and Combinations**
  - 7.1 Permutations
  - 7.2 Combinations
- 8. Probability**
  - 8.1 Types of events
  - 8.2 Addition Theorem
  - 8.3 Conditional probability
- 9. Index Numbers**

Introduction

  - 9.1 Types of Index Numbers
  - 9.2 Uses of Index Numbers
  - 9.3 Some specific Index Numbers
  - 9.4 Cost of living Index Numbers, Uses of cost of living Index Number
- 10. Time Series**

Introduction

  - 10.1 Mathematical Models
  - 10.2 Measurement of Trend

## PART - 2

- 1. Logarithms**
  - 1.1 Introduction and Definition
  - 1.2 Laws of logarithms
  - 1.3 Characteristics and Mantissa
- 2. Theory of Attributes**
  - 2.1 Introduction, notation and class frequencies
  - 2.2 Consistency of data
- 1. Graphs of standard functions**
- 2. Complex Numbers**
- 3. Sequences and Series**
- 4. Trigonometry – I**
- 5. Trigonometry – II**
- 6. Locus and straight lines, Circle and Conics**
- 7. Equations and Determinants**

## Std. XI : LIST OF PRACTICALS



8. Limits and Differentiation
9. Logarithms
10. Theory of Attributes
11. Partition Values
12. Measures of Dispersion-I
13. Measures of Dispersion-II
14. Moments
15. Skewness and Kurtosis
16. Permutations and Combinations
17. Probability-I
18. Probability-II
19. Index Numbers
20. Time Series

### Std. XII : PART - 1

- 1. Mathematical logic**
  - 1.1 Statements
  - 1.2 Logical Connectives
  - 1.3 Statement patterns and logical equivalence
  - 1.4 Algebra of statements
  - 1.5 Venn diagrams
- 2. Matrices**
  - 2.1 Definition and types of matrices
  - 2.2 Algebra of matrices
  - 2.3 Inverse of a matrix
  - 2.4 Solution of equations
- 3. Continuity**
  - 3.1 Continuity of a function at a point
- 4. Differentiation**
  - 4.1 Derivative of Inverse function
  - 4.2 Logarithmic Differentiation
  - 4.3 Derivative of implicit function
  - 4.4 Derivative of parametric function
  - 4.5 Second order derivative
- 5. Applications of Derivative**
  - 5.1 Increasing and decreasing functions
  - 5.2 Maxima and minima

- 6. Indefinite Integration**
  - 6.1 Definition of an integral
  - 6.2 Integral of standard functions
  - 6.3 Rules of Integration
  - 6.4 Methods of Integration
  - 6.5 Integration by parts
- 7. Definite Integrals**
  - 7.1 Definite Integral
  - 7.2 Properties
  - 7.3 Applications

### PART - 2

- 1. Ratio, Proportion and Partnership**
  - 1.1 Ratio, proportion and partnership
- 2. Commission, Brokerage and Discount**
  - 2.1 Commission and Brokerage
  - 2.2 Discount
- 3. Insurance and Annuity**
  - 3.1 Insurance
  - 3.2 Annuity
- 4. Demography**
  - 4.1 Introduction, Definition
  - 4.2 Uses of vital statistics
  - 4.3 Measurements of Mortality
  - 4.4 Life tables
- 5. Bivariate Data and Correlation**
  - 5.1 Bivariate frequency distribution
  - 5.2 Karl Pearson's coefficient of correlation
  - 5.3 Rank correlation
- 6. Regression Analysis**

**Introduction**

  - 6.1 Equation of line of regression
  - 6.2 Regression coefficients and their properties
- 7. Random Variable and Probability Distribution**



- 7.1 Definition and types of random variables
- 7.2 Probability Distribution of a Discrete Random Variable
- 7.3 Probability Distribution of a Continuous Random Variable
- 7.4 Binomial Theorem
- 7.5 Binomial Distribution
- 7.6 Poisson Distribution
- 7.7 Normal Distribution
- 8. Management Mathematics**
- 8.1 Inequations
- 8.2 Linear Programming Problem
- 8.3 Assignment Problem
- 8.4 Sequencing
- Std. XII : LIST OF PRACTICALS**
1. Mathematical Logic
  2. Matrices-I
  3. Matrices-II
  4. Differentiation
  5. Applications of Definite Integrals
  6. Commercial Arithmetic-I
  7. Commercial Arithmetic-II
  8. Measurements of Mortality
  9. Construction of Life Table
  10. Correlation for Bivariate Ungrouped Data
  11. Correlation for Bivariate Grouped Data
  12. Spearman's Rank Correlation Coefficient
  13. Regression Analysis
  14. Probability Distribution
  15. Binomial Distribution
  16. Poisson Distribution
  17. Normal Distribution
  18. Linear Programming Problem
  19. Assignment Problem
  20. Sequencing



## Geology (41)

### Introduction

The subject of Geology is introduced at the Junior college level. It is the branch of Science and it considers various aspects of the earth. It deals therefore with the origin, interior and composition of the earth. It is not only the study of surface processes and surface geology but also studies various processes that operate in the interior of the earth in detail, taking the cognizance of their surface manifestations.

Geology primarily studies the rock, their constituents as minerals, their structures and the way of their distribution has taken place on the continents and also on the ocean floor. Consideration to economical aspects of rock and minerals is one of the major branches of the subject. The structure of rocks has also significance as it plays an important role in various civil engineering structures. Hosting of petroleum and natural gas, as energy source, is also related to the structure of rocks. Though the subject deals with pure and fundamental scientific aspects of rocks and minerals, it has much wider application in industries like refractory, abrasive and medicine, etc.

Major problem now being faced by mankind is of ground water. The subject of geology covers, all the aspects, like its surface and subsurface distribution, conservation and management of watershed and modelling to ground water basin constituents which is the major aspect of study.

In brief, Geology plays an important role in industrial and economic development of the country.

### Objectives

#### To enable the students to

1. understand basic concepts, terminology and processes in Geology.
2. acquire knowledge about the Earth.
3. help to understand the problems of the physical environment and identify measures to overcome them.
4. get acquainted with fundamentals of Mineralogy, Petrology, Structural geology, Paleontology, Stratigraphy, Economic geology, Remote Sensing, Ground water geology.
5. develop scientific temper by promoting the spirit of enquiry by observing the nature and its processes at work.
6. develop geological skills, related to collection, processive and analysis of data/information and preparation of report and use of computers wherever possible.
7. link geology with different fields in national development.
8. apply the knowledge of Geology in finding natural resources and sustainable developments.
9. understand the Geology of India and Maharashtra.

### Std.XI - Paper – I

#### 1. Introduction to Geology

- 1.1 Definition, importance and Interdisciplinary nature
- 1.2 Branches of Geology
- 1.3 The earth as a planet, Origin of the earth. Distribution and evolution of



continents and oceans, Major internal structure of the earth-crust, mantle and core.

## 2. External processes affecting the Earth's crust

- 2.1 Weathering – types, erosion, denudation and deposition
- 2.2 Soil : formation and classification
- 2.3 Geological action : Running water, Glaciers, Wind, Sea waves, Ground water

## 3. Organization

- 3.1 Organizations with reference to location and functions – DGM, GSDA, GSI, ONGC, NIO, ISRO, CGWB, IBM, AMD

## Paper – II

## 4. Minerology

- 4.1 Definition of Mineral, Crystal, Chemical – composition and Physical properties of minerals, - such as Colour, Streak, Lustre, Cleavage, Fracture, Hardness, Form, Specific-Gravity, Radioactivity, Electricity, Magnetism.
- 4.2 Study of rock forming mineral groups as –
  - (1) Feldspar group - Orthoclase
  - (2) Silica group - Rock crystal,, Amethyst, Agate,Opal
  - (3) Amphibole group - Hornblende
  - (4) Pyroxene group - Hypersthene
  - (5) Mica group -

Muscovite

- (6) Olivine group - Olivine

- (7) Other minerals - Calcite, Stilbite, Apophyllite

## 5. Petrology

- 5.1 Definition of rock, Three fold classification of rocks as – igneous, sedimentary and metamorphic.
- 5.2 Igneous rocks – Definition, classification plutonic, hypabyssal and volcanic. Study of Granite, Gabbro, Dunite, Pegmatite, Dolerite, Rhyolite and Basalt.
- 5.3 Sedimentary rocks – Processes of formation of sedimentary rocks, Study of Laterite and Bauxite, Conglomerate, Breccia, Sandstone, Shale, Limestone.
- 5.4 Metamorphic rocks – Definition of metamorphism; Agents and types of metamorphism. Study of Slate, Marble, Chlorite schist, Granite gneiss
- 5.5 Study of rocks used as Building material with reference to Strength, Durability, Colour, Study of Granite, Basalt, Sandstone, Limestone, Marble.

## 6. Maharashtra

- 6.1 Location – its relation with India
- 6.2 Physiography – Physiographic divisions, relief features, Geological structure.
- 6.3 Distribution of major rock types and their economic significance.
- 6.4 Distribution of economically important minerals – varieties of Silica, Zeolites, Kyanite, Bauxite, Iron and Manganese ores, Coal, Oil and Natural gas.



## Practicals

### 1. Mineralogy

1.1 Identification and Description of minerals – Physical properties – Colour, Streak, Lustre, Cleavage, Fracture, Hardness and Chemical composition of following mineral groups –

- (1) Feldspar group - Orthoclase
- (2) Silica group - Rock crystal, Amethyst, Agate, Opal
- (3) Amphibole group - Hornblende
- (4) Pyroxene group - Hypersthene
- (5) Mica group - Muscovite
- (6) Olivine group - Olivine
- (7) Other minerals - Calcite, Stilbite, Apophyllite

1.2 Determination of specific gravity of Quartz, Orthoclase, Hornblende, Calcite, Baryte.

### 2. Petrology

Identification and Description of rocks :

- (1) Igneous rocks – Granite, Gabbro, Dunite, Pegmatite, Dolerite, Rhyolite and Basalt.
- (2) Sedimentary rocks – Laterite and Bauxite, Conglomerate, Breccia, Sandstone, Shale, Limestone.
- (3) Metamorphic rocks – Slate, Marble, Chlorite Schist, Granite Gneiss
- (4) Building stones, Granite, Basalt, Limestone, Marble, Sandstone

### 3 Topographical Map

Acquaintance with topographical maps. Map making agency – Survey of India, Reading of Topsheets of Maharashtra. Use of conventional signs and symbols. Identification of landforms.

### 4 Field work and it's brief report

### 5 Certified Practical Journal

## Std. XII : Paper – I

### 1. Dynamic Geology

- 1.1 Earthquakes – Definition, Causes, Seismic waves, Magnitude and Intensity
- 1.2 Volcanoes – Types, Products, Associated features
- 1.3 Mountains – Types
- 1.4 Natural Hazards and Disasters – Classification
  - i) Tectonic – Earthquakes – Effects, Precautions, Seismic Zones of India
  - ii) Topographic – Landslides – Causes, Forms and Effects. Disaster Management.

### 2. Structural Geology

- 2.1 Outcrop, Dip and Strike of bed
- 2.2 Fold
 

Definition, Elements of fold, Anticline, Syncline, Symmetrical and Asymmetrical
- 2.3 Fault
 

Definition, Elements of fault, Normal, Reverse, Horst and Graben
- 2.4 Joint
 

Definition, Geometrical and Genetical classification



- 2.5 Unconformity  
Definition, formation of Unconformity  
Disconformity, Nonconformity and  
Angular unconformity.

### 3. Palaeontology and Stratigraphy

- 3.1 Fossils  
Conditions and Modes of preservation  
and Uses.
- 3.2 Stratigraphy of Peninsular India  
Principles, Correlation and its  
methods. Standard Geological Time  
Scale.
- 3.3 Stratigraphy of Peninsular India.  
Physiographic Divisions of  
Peninsular India, Brief outline of  
stratigraphy of Peninsular India.

## **Paper – II**

### 4. Materials of the Crust

- 4.1 Mineralogy – Definition :  
Rock forming mineral groups
1. Feldspar Group –  
Microcline, Plagioclase.
  2. Silica group –  
Quartz, Amethyst,  
Chalcedony, Flint,  
Jasper, Opal.
  3. Amphibole group –  
Hornblende, Asbestos
  4. Pyroxene group –  
Augite
  5. Mica group –  
Biotite, Phlogopite.
  6. Olivine group –  
Olivine.
  7. Other minerals –  
Kyanite, Corundum, Gypsum,  
Calcite, Garnet

- 4.2 Petrology  
Definition of rock, rock cycle

- A) Igneous -  
Definition, classification based on  
silica percentage, mode of occurrence,  
colour, Texture-Crystallinity,  
Granularity, Mutual relationship,  
Granitic, Porphyritic.  
Structure – Vesicular and  
Amygdaloidal. Forms – Extrusive and  
Intrusive
- B) Secondary / Sedimentary  
Definition, classification – based on  
products of weathering.  
Texture – Size, Shape, Form. Structure  
– Stratification, Lamination, Graded  
bedding, Cross bedding, Ripple marks.
- C) Metamorphic Definition,  
Agents, Types and Zones  
Structure – Slaty, Granulose, Schistose  
and Gneissose.

### 5. Economic Geology

- 5.1 Definition of  
Ore, Ore mineral, Industrial mineral,  
Gangue, Tenor of ore
- 5.2 Ores
1. Iron Ore –  
Hematite, Magnetite
  2. Manganese Ore –  
Pyrolusite, Psilomelane
  3. Copper Ore –  
Chalcopryrite
  4. Lead Ore –  
Galena
  5. Aluminium Ore –  
Bauxite
- 5.3 Mineral/Rock Based Industries –  
Fuel –



Coal, Petroleum  
 Cement –  
 Limestone, Gypsum  
 Fertilizers –  
 Gypsum  
 Refractories –  
 Bauxite, Kyanite  
 Abrasives –  
 Diamond, Corundum  
 Electric and Electronics  
 Mica and Quartz  
 Medicines –  
 Mica, Iron ore, Copper ore

## 6. Applied Geology

- 6.1 Ground Water –  
 Source and Zones of ground water,  
 Water table and Aquifer and their  
 types.  
 Conservation and Management of  
 ground water.
- 6.2 Remote Sensing –  
 Definition, Elements of photo  
 recognition Tone, Texture, Size,  
 Shape, Association, Recognition of  
 terrain features – Relief (Plain, Hills  
 and Ranges), Drainage (Streams,  
 River), Exposures- (Vegetation, Soil  
 and Rocks, Lineaments)  
 Manmade features – (Road, Town/  
 village, Agriculture field)
- 6.3 GIS –  
 Components of Geographical  
 Information System. Importance and  
 significance of G.I.S.

## Practicals

### 1. Mineralogy

#### (A) Identification and Description of minerals

With reference to Chemical Composition.  
 Colour, Streak, Lustre, Fracture, Cleavage,  
 Hardness and Form of following mineral  
 groups :

- 1) Feldspar group –  
 Microcline, Plagioclase
- 2) Silica group –  
 Quartz, Amethyst, Chalcedony, Flint,  
 Jasper, Opal
- 3) Amphibole group –  
 Hornblende, Asbestos
- 4) Pyroxene group  
 Augite
- 5) Mica group –  
 Biotite, Phlogopite
- 6) Olivine group  
 Olivine.
- 7) Other minerals –  
 Kyanite, Corundum, Gypsum, Calcite,  
 Garnet.

#### (B) Identification and Description of ore minerals

With reference to Chemical composition,  
 Colour, Streak, Lustre, Fracture, Cleavage,  
 Hardness, Form and Uses of following ore  
 minerals.

- 1) Iron Ore –  
 Hematite, Magnetite
- 2) Manganese Ore –  
 Pyrolusite, Psilomelane
- 3) Copper Ore –  
 Chalcopyrite



4) Lead Ore –  
Galena

5) Aluminium Ore –  
Bauxite

## 2. Petrology

Identification and description of rocks with reference to Colour, Texture/Structure, Mineral Composition and Classification.

1) Igneous –  
Granite, Syenite, Gabbro, Dunite, Pegmatite, Dolerite, Rhyolite, Basalt.

2) Sedimentary – Laterite and Bauxite, Breccia, Boulder bed, Grit, Sandstone, Shale, Siltstone, Limestone.

3) Metamorphic – Phyllite, Marble, Quartzite, Mica schist, Hornblende gneiss

## 3. Structural Geology

Drawing and study of sketch diagrams of the following

Dip and Strike of bed,

Fold-

Anticline, Syncline, Symmetrical, Asymmetrical

Fault -

Normal, Reverse, Horst, Graben

Joint -

Strike, Dip, Bedding, Oblique, Columnar

Unconformity –

Disconformity, Nonconformity, Angular

Igneous forms –

Sill, Dyke, Laccolith, Lopolith, Batholith, Phacolith

## 4. The Geological Map of India

Outline map of India with outline of geological formations of peninsular India are to be supplied to the student and a student has to fill the appropriate colours/signs and prepare the index of the following geological formations – Dharwar, Cuddapah, Vindhyan, Gondwana, Deccan traps and Tertiary Super groups.

## 5. Topographical Maps

Reading of topographical maps with reference to prominent physical features and drawing of cross section with reference to horizontal series of beds.

## 6. Field Work

Visit to near by geologically interesting and important places and their brief report.

## 7. Record

Certified Practical Journal.



## Political Science (42)

### Introduction

Man is a social animal. He lives in a society. Every individual interacts with each other. There are different activities of human beings. Some are social some are related to finances and some are Political activities.

The students of Political Science studily different political institutions. Students have started learning this subject from Std. IX. They have studied the meaning and definitions of Political Science, as well as they have studied the concept of democracy, challenges to the democracy, electoral process, political parties, etc.

Political Science is most influential important social science. Some basic concepts like Liberty, Equality, Justice, Human Rights, State, Nation are subject matter of this subject. It deals even with Governance, which explains how the country is governed International relation is also a part of Political Science. So it deals with problems like world security changing world, Globalization, etc.

Though Political Science is related to mainly political activities, some social activities influence over political activities, so they also are studied in Political Science. Social movements is one of the examples. OBC politics, Regionalism, Communalism also are part of this subject.

### Objectives

1. To create and develop interest among students in Political Science as an important Social Science.
2. To introduce to students the relation of Political Science to social life, introduce

Political Science to social life, introduce various concepts from Political Science and their importance.

3. To create awareness about Human Rights and their violations. To introduce to students International organizations and changing context of world politics.
4. To introduce to students the social, cultural economic effects of Globalization in India.
5. To create awareness among students about the Fundamental Rights necessary for all round development of individuals.
6. To introduce to students changing nature of legislature, Executive and Judiciary.
7. To explain to students changing nature of party competition in India and its effects on Indian Politics.
8. To introduce to students various social political movements in India and the new trends in Indian Politics based on caste, religion, language.

### Std. XI : Part One

#### Political Theory

1. State – Meaning, Essential components of the state, State and Society, State and Government
2. Nation – Meaning, Difference between State and Nation.
3. Liberty – Meaning, Types and Importance
4. Equality and Justice – Meaning and Types
5. Human Rights – Declaration of Human Rights, National Human Rights Commission, State Human Rights Commission; Composition and functions.



## Part Two

### Contemporary World Politics

6. Changing World – Cold war, End of Bipolarization, Emergence of Uni - polar system, Multi polar system
7. International Organizations – Need, Different organization 1) International Organizations 2) Regional Organizations
8. World Security – Meaning, Importance, Factors endangering world security – Terrorism, Violation of Human Rights, Poverty in the World, Arms race
1. Globalization – Meaning, Emergence of Globalization, Effects of Globalization, India and Globalization

## Std. XII Part One

### Indian Constitution

1. Indian Constitution : Characteristics
2. Fundamental Rights, Directive Principles and Fundamental duties.
3. Legislature : Parliament.  
Lok Sabha and Rajya Sabha, Law making process, Amendment procedure State legislature : Vidhan Sabha, Vidhan Parishad
4. Executive : Union Executive :  
President – Election, Power and Functions  
Vice President – Election, Power and Functions  
Prime Minister and Council of Ministers – Election,  
Collective Responsibility and Role of Prime Minister  
State Executive : Governor, Chief Minister and Council of - Ministers.

5. Judiciary : Introduction, composition
  - A) Supreme Court : Introduction, Composition, power and function
  - B) High Court : Composition, power and function
  - C) Subordinate Court, Lok Nyalaya
  - D) Independence of the judiciary

## Part Two

### Politics in India

6. Patterns of Party Competition
  - i) One party dominant system
  - ii) Towards multi party system
7. Political and Social Movements
  - i) Nature of social movement
  - ii) Role of movements in democratic system
  - iii) Examples of movements i) Caste ii) Workers iii) Women iv) Farmers etc.
8. New trends in Indian Politics
  - i) Changing relations between caste and politics – OBC Politics
  - ii) Regionalism and Increasing importance of states
  - iii) Rising importance of religion in Indian Politics.

### Internal assessment -

- i) Field visit
- ii) Interview
- iii) Seminar
- iv) News paper cutting
- v) Book Review
- vi) Project



# Home Management

(For Std. XI only)

## Introduction

Home management is an area that deals with a systematic study of management of resources in the family to achieve the goals and improve the quality of life of the families and individuals. The theory and application of home management creates interest in resource management as a subject of teaching, learning and application. It is a combination of art and science.

This syllabi focuses on basics of resource management, decision making, work simplification, interior decoration, savings - investment and consumerism, which help students to become good home maker, wise consumer and entrepreneur. It further emphasizes on developing skills in time-management, family budget, flower arrangement and home decoration.

## Objectives

To enable the students to

1. understand the concept of Home-Management
2. use resources wisely
3. develop skill in decision making
4. acquaint with family income, family budget and saving
5. understand the application of work-simplification
6. develop aesthetic sense through home decoration
7. realise consumer problems and role of consumer in market
8. develop good buymanship skill

## Theory :

### Unit-1 Introduction to Management

- 1.1 Definition of Management
- 1.2 Basic concept of Management
- 1.3 Nature and Role of Home Management in changing world
- 1.4 Need of Home Management in day to day life

### Unit-2 Factors Motivating Management

- 2.1 Values – Concept, Characteristics, Sources and Types
- 2.2 Goals – Definition, Types, Importance
- 2.3 Standards – Definition, Classification
- 2.4 Inter-relationship between Values, Goals and Standards

### Unit-3 Management Process

- 3.1 Meaning and Definition of Home Management
- 3.2 Steps in Management Process – planning, controlling and evaluation
- 3.3 Relationship between planning, controlling and evaluation

### Unit-4 Decision Making

- 4.1 Meaning and Definition
- 4.2 Importance
- 4.3 Decision making process
- 4.4 Types of Decision

### Unit-5 Family Resources

- 5.1 Meaning and Definition
- 5.2 Classification of Resources – Human and Non-human



- 5.3 Characteristics of Resources
- 5.4 Factors affecting the use of family resources
- Unit-6 Time Management**
- 6.1 Concept and definition
- 6.2 Importance of Time Management
- 6.3 Classification of Time – Work time, Rest period, Leisure time
- 6.4 Characteristics of time
- 6.5 General guidelines for managing time
- Unit-7 Management of Family Income**
- 7.1 Definition of family income
- 7.2 Sources of family income
- 7.3 Ways of improving family income
- 7.4 Family Budget– Definition, Importance, Steps in making budget
- 7.5 Savings and Investment  
Definition, Importance, Types, Schemes
- Unit-8 Work Simplification**
- 8.1 Definition
- 8.2 Importance
- 8.3 Mundel’s Classes of Change
- 8.4 Application of Mundel’s Classes of Change
- Unit-9 Home Decoration**
- 9.1 Elements of Arts
- 9.2 Principles of Arts
- 9.3 Flower Arrangement – Importance, material used, types.
- 9.4 Rangoli – Importance, material used, types
- 9.5 Accessories – Meaning, types, guidelines for selection and placement of various accessories in different rooms
- Unit-10 Home Furniture**
- 10.1 Definition of furniture
- 10.2 Importance
- 10.3 Material used
- 10.4 Selection of furniture
- 10.5 Care of furniture
- Unit-11 Consumer Awareness**
- 11.1 Definition of consumer
- 11.2 Responsibilities of consumers
- 11.3 Problems faced by consumers
- 11.4 Rights of consumers
- 11.5 Guidelines for wise purchase
- 11.6 Consumer Protection Act
- Related Activities And Project :**
- A. Related activities**
- i) Collection and analysis of any five labels.
- ii) Demonstration on any two types of flower arrangement.
- iii) Demonstration on any two types of Rangoli.
- iv) Preparation of one inexpensive decorative article.
- B. Any one project based on syllabus**  
(Maintenance of record of above activities and project)



# Food Science

(For Std. XI only)

## Introduction

Food is the basic necessity of life. Particularly, nutritious food is essential for good health. Food science deals with the study of nutritive value and composition of food and changes taking place in it during preparation and processing. This subject involves the study of nutrients, balanced diet, methods of cooking of food and principles of cookery. The knowledge enables the students to make right choice of food for physical and psychological well being.

In addition to scientific principles, Food science also includes an 'art'. The practicals provided for this subject help the students to develop the 'skill' in cooking. It motivates the students to try out various innovative, nutritious recipes and serve these in attractive manner.

The student is thus equipped to plan and prepare 'balanced' recipes for healthy living.

### Objectives –

#### To enable the students to

1. understand the functions of food and nutrients.
2. learn the basic five food groups and apply the knowledge in planning balanced diet.
3. know various methods of cooking and use these while cooking different foods to prepare attractive nutritious acceptable food products.
4. improve nutritional quality of food.
5. learn the desirable and undesirable changes which occur during preparation, cooking and processing of food.

6. eliminate undesirable changes and bring about desirable changes during cooking.
7. develop skill in selection, buying, care and storage of food.
8. identify common food adulterants.
9. study the effect of food adulterants.

## Std. XI : Theory

### Unit-1 Introduction to Food Science

- 1.1 Objectives of Food Science
- 1.2 Acceptability of food
- 1.3 Meaning and concept of Food, Nutrition, Nutrients and Health.
- 1.4 Functions of food (Physiological, Social and Cultural, Psychological)

### Unit-2 Nutrients in food - Sources, function and deficiency

- 2.1 Carbohydrates
- 2.2 Proteins
- 2.3 Fats
- 2.4 Vitamins
- 2.5 Minerals

### Unit-3 Food Groups

- 3.1 Classification of food according to five basic food groups
- 3.2 Contribution of food groups to diet.
- 3.3 Concept of Balanced diet.

### Unit-4 Cooking of food

- 4.1 Objectives of Cooking food
- 4.2 Prepreparation for cooking



- 4.3 Methods of cooking, advantages and disadvantages \* Moist heat \* Dry heat \* Frying \* Microwave, \* Solar Cooking \* Combination method
- Unit-5 Carbohydrate**
- 5.1 Classification – Monosaccharide, disaccharide and polysaccharide
- 5.2 Sugar
- \* Types – Granulated, Powdered, Khandasari, Icing sugar, Brown sugar
  - \* Effect of heat on sugar – Caramelization, Crystallization, Inversion.
  - \* Use of sugar in cookery.
- 5.3 Cereal and Cereal products.
- \* Composition
  - \* Cereal products
  - \* Principles involved in cooking – Dextrinization, Gelatinization, Gel formation, Identity of grains, Gluten formation, Fermentation.
- Unit-6 Protein**
- 6.1 Physical and Chemical properties.
- 6.2 Milk and Milk products -
- \* Composition
  - \* Effect of heat, acid and enzyme on milk.
  - \* Processing of milk – Pasteurization, Homogenization, Sterilization, Condensation, Skimming, Drying.
  - \* Milk products – Curd, Chakka, Cheese, Paneer, Khova, Cream, Butter, Milk powder.
- 6.3 Legumes and Pulses
- \* Importance in diet.
  - \* Processing of legumes and pulses – Decortication, Soaking, Germination, Fermentation.
  - \* Use of legumes and pulses in cookery.
- 6.4 Nuts and Oilseeds
- \* Importance in diet.
  - \* Uses of nuts and oilseeds in cookery.
- 6.5 Eggs
- \* Structure and composition
  - \* Effect of cooking on egg.
  - \* Foam formation.
  - \* Functions of egg in cookery.
- 6.6 Fish, Meat and Poultry
- \* Structure
  - \* Importance in diet.
  - \* Effect of Cooking.
- Unit-7 Vegetables**
- 7.1 Classification and composition
- 7.2 Importance in diet.
- 7.3 Colour pigments.
- 7.4 Flavouring compounds.
- 7.5 Changes during cooking.
- Unit-8 Fruits**
- 8.1 Classification and composition
- 8.2 Importance in diet.
- 8.3 Colour pigments and flavouring compounds
- 8.4 Changes during ripening and cooking
- Unit-9 Fats and oils**
- 9.1 Saturated and unsaturated fats
- 9.2 Types of fats and Oils – Butter, Margarine, Hydrogenated fats, Oils, Ghee
- 9.3 Uses of fats and oil in cookery.
- Unit-10 Spices and condiments**
- \* Use in cookery.



## Unit-11 Food adulteration

11.1 Definition of food adulterant and food adulteration.

11.2 Common food adulterants and its identification.

11.3 Effect on health

### Std. XI - Practicals and Project

1. Introduction to laboratory rules, use of equipments and terms used in cookery.
2. Weights and measures of raw foods in standard and household measures.

#### 3. Cereal Cookery

Preparation of any one recipe from each principle

##### 1. Gelatinization and Dextrinization

- Vermicelli kheer / Sheera

##### 2. Identity of Grain

- Pulao/Masale Bhat

##### 3. Gluten formation

- Puri (Masala)/ Thepla

##### 4. Fermentation

- Bhatura/Jelebi

##### 5. Processed Cereal

- Mix-Max Bhel / Green Pohe / Chivada

#### 4. Sugar Cookery

##### 1. Demonstration of syrup making.

##### 2. Caramelization

- Til papadi / Caramel Pudding

##### 3. Crystallization

- Sugar coated ground nuts / Champakali

##### 4. Inversion

- Rose syrup/ Sudharus

##### 5. Sugar in syrup form

- Gulab jamun / Rasgulla

#### 5. Milk and Milk Products

##### 1. Coagulation of protein by heat

- Basundi/Rabadi/Kulfi

##### 2. Coagulation of protein by acid :

- Palak Paneer/Mutter Paneer/ Paneer Paratha

#### 6. Legumes and Pulses

##### 1. Soaking / Germination

- Usal/Dahi wada / Mix Dal wada

##### 1. Fermentation

- Idli/Dhokla and Chutney

##### 2. Gelatinization, Gel formation

- Kadhi, Surali wadi/ Vegetable Omelette

#### 7. Nuts and oil seeds

##### 1. Thickening agent

- Khuskhus Kheer / Ground nut- Amti

#### 8. Eggs

##### 1. Leavening agent and foaming

- Cake/Doughnut

##### 1. Binding agent (Coagulation of egg protein and Gel formation.)

- Scrambled egg / Bread pudding / Puffy Vegetable Omelette.

##### 2. Thickening agent

- Soft custard with fruits.

##### 3. Emulsifying agent

- Russian salad/Salad with creamy French dressing.

#### 9. Vegetables and fruits

##### 1. Any vegetable in combination with dal / besan / legume/cereal

- Coriander wadi / Alu wadi / Dal kanda

##### 2. Vegetable and Fruit preparations using different colour pigments

- Soup : Palak/Tomato/Mixed vegetable



- Salad : Indian/Western.
3. Snacks using vegetables  
Mixed Vegetable cutlet /  
Vegetable Thalipith.
  10. Sandwiches
  11. Demonstration on identification of adulterants from foods- Tea, Turmeric, Chilly powder, Rava, Butter, Ghee, Oil and any other.
  12. Maintenance of a Journal.
  13. Selection of a project based on syllabus and preparation of a project file



# Child Development (43)

(For Std. XII only)

## Introduction

Child development is a broad behavioural science which deals with the needs, rights, growth pattern, developmental aspects of an individual. The theoretical and practical knowledge of the subject develops proper understanding and attitudes of the students towards children and the ability to recognize the uniqueness of each child's traits. This will enable the students to adopt effective methods and techniques for observing and evaluating the child in scientific manner enhancing their skills and confidence.

After learning this subject the students can work independently with young children and assist in various child-centres. Besides this, the knowledge of the subject is quite useful to the would be mothers to upbring their children in a scientific way, which in turn will definitely help in promoting children's wholesome development at its maximum potential and also in building a strong nation.

## Objectives

### To enable the students to

1. get acquainted with the developmental phases from conception to six years
2. develop awareness about importance of early years in human life
3. know the nature of developmental pattern and factors affecting development
4. understand the various aspects of child development
5. understand the needs and importance of early child care and education

## Theory :

### Unit-1 Introduction to Child Development

- 1.1 Meaning and Scope of child development
- 1.2 Needs of children and various ways to meet them
- 1.3 Characteristics of children during infancy, toddler hood and early childhood
- 1.4 Rights of children
- 1.5 Importance of early years in individual's life

### Unit-2 Growth and Development

- 2.1 Meaning of growth and development
- 2.2 Factors influencing growth and development- Heredity, Environment, Maturation and learning, Nutrition , Endocrine glands, Illness, Physical defects, Rest, Sleep, Exercise and Family culture.
- 2.3 Principles of development
- 2.4 Developmental milestones of children

### Unit-3 Pre-natal Development

- 3.1 Male and Female reproductive system
- 3.2 Conception
- 3.3 Stages of prenatal development
- 3.4 Signs of pregnancy
- 3.5 Danger signals during pregnancy
- 3.6 Care during pregnancy and delivery



- 3.7 Factors influencing prenatal development
- Unit-4 Neonatal Period**
- 4.1 Physical appearance of the new born baby
- 4.2 Neonatal adjustment to postnatal life
- 4.3 Reflexes of newborn
- 4.4 Care of new born
- Unit-5 Physical Development during infancy and early childhood**
- 5.1 Meaning and importance of physical development
- 5.2 Aspects of physical development – Height and weight, Body proportions, Muscles, Bone and teeth
- 5.3 Physical development during infancy
- 5.4 Physical development during early childhood
- 5.5 Factors influencing physical development
- Unit-6 Motor Development during infancy and early childhood**
- 6.1 Meaning and importance of motor development
- 6.2 Sequence of motor development
- 6.3 Development of gross and finer motor skills
- 6.4 Handedness
- 6.5 Motor development during infancy
- 6.6 Motor development during early childhood
- 6.7 Factors influencing motor development and skills
- Unit-7 Cognitive Development during infancy and early childhood**
- 7.1 Meaning and importance of cognitive development –
- 7.2 Mental Process-Perception, Thinking, Reasoning, Memory, Imagination, Curiosity, Creativity, Attention span, Concept formation
- 7.3 Cognitive development during infancy
- 7.4 Cognitive development during early childhood
- 7.5 Factors influencing cognitive development
- Unit-8 Speech and Language Development during infancy and early childhood**
- 8.1 Functions of Language
- 8.2 Communication – Crying, Cooing and Babbling, Gesturing, Learning to speak, Pronouncing words, Sentence Formation
- 8.3 Steps in Speech and language development – Comprehension, Vocabulary building, Sentence formation, Pronunciation
- 8.4 Speech defects
- 8.5 Speech and Language Development during infancy
- 8.6 Speech and Language Development during early childhood
- 8.7 Factors influencing speech and language Development
- Unit-9 Emotional Development during infancy and early childhood**
- 9.1 Meaning and importance of emotional development
- 9.2 Characteristics of children's emotions
- 9.3 Common emotional pattern –



Positive and negative emotions  
- Excitement, Love and Affection, Curiosity, Joy, Fear, Anger, Temper Tantrums, Jealousy – Causes, expression and effective ways of dealing with them

9.4 Emotional development during infancy

9.5 Emotional development during early childhood

### **Unit-10 Social and Moral Development during infancy and early childhood**

10.1 Meaning and importance of social development

10.2 Role of family, school and community in socialization

10.3 Forms of social behaviour – Negativism, Aggression, Co-operation, Rivalry, Quarrelling, Shyness, Timidity

10.4 Meaning and importance of moral development

10.5 Types of disciplinary methods and its effects on children

10.6 Meaning and importance of moral development.

10.7 Elements of discipline and types of disciplinary methods adopted by parents.

### **Unit-11 Early Childhood Care and Education**

11.1 Need and importance

11.2 Types of Early Childhood Care and Education Centres and various activities to be conducted in centres - Play Centre, Crèche, Anganwadi,

Nursery School, Kindergarten, Balwadi, Montessori School etc.

Activities – Outdoor and Indoor play, stories, songs, readiness activities, literature activities, arts and craft activities, field trips etc.

11.3 Integration of children with special needs in early childhood education

## **Std. XII**

### **Related Activities and Project**

#### **A. Related Activities**

- a. Collection of literature related to children Songs/ stories/ riddles/ pictures for children
- b. Any two Art and craft activities for children –
  - Painting -Finger painting, Thread/ String and Block painting, Spray and Stencil painting
  - Printing -Block, Vegetable, Thumb/ Hand/Foot print
  - Paper activities -Tearing, Twisting, Crumbling, Folding
  - Collage work - Paper, Cloth or any other Clay moulding
- c. Preparation of Soft toys/ Puppets, Educational material/ Play material
- d. Visit to Play Centre/Creche/Anganwadi/ Nursery School and Report Writing

#### **B. Project**

Any one project based on syllabus (Maintenance of record of above activities and project)



## Textiles (44)

(For Std. XII only)

### Introduction

Food, shelter and clothing are three basic needs of mankind. The use of textiles has become more and more comprehensive as the field developed. Today it is not limited only to protect the human body but is also used to indicate the social status and for variety of other purposes. It is being used for clothing, home furnishing, household textiles and also for many other industrial and medical purposes.

Syllabus is framed for students who desire a fundamental understanding of textiles – their nature, selection, use and care. The syllabus is organised in logical manner. It deals with textile related terms, fibers, yarns, fabrics, finishes and care. The syllabus is designed in such a way that it gives student relevant information needed to become a better consumer of textile products and to teach others how they may select and purchase wisely.

As the scope of textiles is ever expanding so do the field of laundry. Realising the need separate topics included in the syllabus will help student to take care of textiles in satisfactory manner. The practical knowledge will develop entrepreneurship skills among the students.

### Objectives

#### To enable the student to

1. get acquainted with the properties and uses of various textile fibers.
2. understand different types of yarns, weaves and finishes.
3. develop skills in making wise purchase of textiles.
4. acquire knowledge of methods of laundry and stain removal.

5. create awareness regarding selection of textiles.
6. understand the principles of clothing construction and its application.
7. acquire basic skills of clothing construction.

### Std. XII

- |        |   |
|--------|---|
| Unit-1 | 1. Introduction to textiles <ol style="list-style-type: none"> <li>1.1 Meaning and scope</li> <li>1.2 Classification of textile fibers</li> <li>1.3 Properties of textile fibers</li> </ol>   |
| Unit-2 | 2. Natural fibers : Introduction, Properties, Uses <ol style="list-style-type: none"> <li>2.1 Cotton</li> <li>2.2 Wool</li> <li>2.3 Silk</li> <li>2.4 Asbestos</li> </ol>   |
| Unit-3 | 3. Man made fibers : Introduction, Properties, Uses <ol style="list-style-type: none"> <li>3.1 Viscose Rayon</li> <li>3.2 Polyester</li> </ol>  |
| Unit-4 | 4. Yarn <ol style="list-style-type: none"> <li>4.1 Introduction</li> <li>4.2 Yarn formation</li> <li>4.3 Yarn twist</li> <li>4.4 Classification· Simple yarns-Single, Ply, Cable, Crepe Novelty yarns – Slub, Knot, Flock, Boucle, Nub, Chenille</li> </ol> |
| Unit-5 | 5. Fabric construction <ol style="list-style-type: none"> <li>5.1 Introduction</li> <li>5.2 Weaves           <ul style="list-style-type: none"> <li>• Classification Basic weaves</li> </ul> </li> </ol>  |



- Plain, Twill, Satin·  
Novelty weaves – Pile,  
Leno-Gauze, Honey Comb
- 5.3 Non-woven fabric  
construction
- Unit-6 6. Finishes  
6.1 Introduction  
6.2 Objectives  
6.3 Basic finishes -Singeing,  
Scouring, Bleaching,  
Brushing, Sizing,  
Weighting, Degumming,  
Mercerizing, Delustering,  
Sanforizing and calendering  
6.4 Special finishes
- Unit-7 7. Consumer Awareness  
7.1 Problems of consumers and  
remedies  
7.2 Labels  
7.3 Purchase, storage and care  
of textiles
- Unit-8 8. Laundry  
8.1 Introduction :  
Aims and objectives  
Scope of Laundry  
8.2 Cleansing Agent :  
Introduction, Types, Uses,  
Water, Soaps, Detergents
- Unit-9 9. Methods of laundering  
9.1 Introduction  
9.2 Various methods of  
laundering  
9.3 Washing of different types  
of clothes – Cotton, Silk,  
Wool, Synthetic
- Unit-10 10. Stain Removal  
10.1 Introduction  
10.2 Classification  
10.3 Techniques and methods  
10.4 General guidelines for stain  
removal
- Unit-11 11. Introduction to Household  
Textiles  
11.1 Curtains and Draperies  
11.2 Bed sheets and Pillow  
covers  
11.3 Towels and Napkins  
11.4 Carpets and Rugs

## Std. XII

### Practicals and project

1. Sewing tools and accessories
2. Sewing machine – Parts, functions and care of sewing machine
3. Basic terms used in clothing construction
4. Body measurements
5. Demonstration of various seams, necklines, plackets, fastners
6. Stitching of Apron by incorporating following -
  - i) Bias binding for bib
  - ii) Patch pocket
  - iii) Belt
7. Stitching of A line frock by incorporating following -
  - i) Bias binding for armhole and neckline
  - ii) Plain placket
  - iii) Fasteners
8. Identification of Textile fibres by performing burning test –Cotton, Wool, Silk, and Polyester fibre
9. Identification of basic weaves - Plain, Twill, Satin
10. Identification of novelty weaves - Honey comb, Pile, Leno-gauze
11. Collection of textile labels – Informative, Brand, Certification
12. Maintenance of journal
13. Any one project based on syllabus



## Sociology (45)

### Introduction

Sociology is a Social Science. There is a difference between Science and Social Science. We live in a society with full of social and natural calamities. It is not in the hands of common man to control the situation. The study of social problems should be without personal bias. The proper applications of scientific principles are necessary. So Sociology is a Science which tackles problems by using Scientific methods. Science asks us to find out the actual sequence of the incidents and their interrelation. Sociology studies the incidents in a systematic way.

In a society we interact with human beings. So it is the duty of Sociology to understand human interactions. Society is united on the basis of Social relationships. Individuals learn the culture and aspects of social life by social processes. This process of socialization changes the raw human being into a social being. A teacher should build a noble person for future society through sociology. He teaches students to behave to be responsible persons with humanity. Education provides various experiences to the students. These experiences set the students to understand society and to adopt social conditions in a desirable manner.

Applied sociology includes various practical uses of Sociology in planning, adjustment with the changing time, preparing welfare programme, removal of illiteracy, corruption, communalization, exploitation etc. The students are expected to study environmental issues, modernization, population

education, Sanskritization, globalization with other social factors.

The course prepared for standard XI and XII would certainly serve as a foundation course in Humanities.

### Std. XI (SOCIOLOGY)

#### Objectives

1. To make students aware about concepts and definitions of society and Sociology.
2. To introduce the students about emergence of Sociology its nature, scope and founding fathers.
3. To introduce basic concepts of Sociology, along with their characteristics.
4. To make students aware of Social stratification and its types.
5. To explain different dimensions of Social system in India .
6. To introduce base of Social Research with types.
7. To introduce Culture with its characteristics features.
8. To make students aware about concepts like socialization and re-socialization.
9. To introduce various social processes.
10. To introduce directions, components and types of social change.

#### Syllabus

##### Unit-1: Nature of Sociology

- 1.1 Introduction to Sociology- Definitions, Emergence and Nature.
- 1.2 Scope and uses of sociology
- 1.3 Contribution of Sociologists:
  - a) Auguste Comte
  - b) Emile Durkheim.



- c) Dr. G. S. Ghurye.
- d) Dr. M. N. Srinivas.

**Unit-2: Social Research Method**

- 2.1 Social Research – Definition and Meaning
- 2.2 Scientific Method – Definition and Stages
- 2.3 Sources of Data Collection:
  - a) Meaning of Primary Data and its Sources:
    - (i) Observation
    - (ii) Interview
    - (iii) Questionnaire
    - (iv) Schedule
    - (v) Survey
  - b) Meaning of Secondary Data and its Sources:
    - (i) Personal documents
    - (ii) Public documents

**Unit-3: Basic Concepts**

- 3.1 Concept : Definition, meaning and functions.
- 3.2 Society : Definition, meaning and characteristics.
- 3.3 Social Group : Definition, meaning and characteristics, classification of social group into Primary and Secondary.
- 3.4 Community : Definition, meaning and characteristics.
- 3.5 Association : Definition, meaning and characteristics.
- 3.6 Status and Role :
  - A) Status - Definition and types - Ascribed and Achieved.
  - B) Role : Definition of Role, Role set, Role strain and Role conflict.
- 3.7 Social Stratification : Definition, meaning, and forms of stratification

(open and closed)

**Unit-4: Social System**

- 4.1 Social System – Definition, Meaning and Characteristics.
- 4.2 Marriage – Definition, Meaning, Characteristics, Forms and Functions.
- 4.3 Family – Definition, Meaning, characteristics. Forms and Functions.
- 4.4 Religion – Definition, Meaning, Nature, Functions and Dysfunctions

**Unit-5: Culture and Socialization**

- 5.1 Culture – Definition, Meaning, Characteristics and components of Culture (Knowledge, Beliefs, Norms and Values, Signs).
- 5.2 Socialization – Definition, Meaning, Process of Socialization, Agencies of Socialization and Importance of Socialization.

**Unit-6: Social Processes**

- 6.1 Social Process – Definition, Meaning and Characteristics.
- 6.2 Types of Social Processes:
  - a) Cooperation – Definition, meaning, Characteristics and Types.
  - b) Competition – Definition, meaning, Characteristics and Types.
  - c) Conflict – Definition, meaning, Characteristics and Types.
  - d) Accommodation – Definition, Meaning and characteristics
  - e) Assimilation – Definition, meaning and characteristics.

**Unit-7: Social Change**

- 7.1 Social change – Definition, Meaning



and Characteristics.

**7.2** Factors of Social Change:

- 1) Geographical
- 2) Biological
- 3) Technological
- 4) Cultural.

**7.3** Forms of Social Change:

- (1) Evolution
- (2) Progress
- (3) Reform
- (4) Revolution.

**7.4** Direction of Social Change: (1) Linear  
(2) Cyclical

**Unit-8: Project Work (20 Marks)**

Project work has been newly included in the Standard XI Sociology Syllabus as per the new guidelines.

**Std. XI**

**Objectives**

1. To introduce different stages of formation of Indian Society.
2. To introduce Tribal Community, Rural Community Urban Community, The three Segments of Indian Society with their Characteristics, problems and remedies.
3. To study about family, marriage and caste the social institutions of India with their continuity and change.
4. To make students aware of social problems in India, like population, women's problems, problems of youth, with their causes and remedies.
5. To make students aware of the nature, needs, hurdles and remedies of Indian National Integration.
6. To explain the students about changing dimensions of India like industrialization, modernization, democratization, etc.
7. To introduce Contribution of Social Reformers in India.

8. To inform about mass media and processes like Globalization as new areas of social change.

**Std.-XII  
(SOCIOLOGY)**

**Unit 1 Introduction to Indian Society**

**A. Formation of Indian Society**

- 1.1 Ancient Period
- 1.2 Medieval Period
- 1.3 British Period
- 1.4 Post Independence Period

**B. Segments of Indian Society**

- 1.5 Tribal community – Definition, characteristics, problems and remedies
- 1.6 Rural Community – Definition, characteristics, problems and remedies
- 1.7 Urban community – Definition, characteristics, problems and remedies

**Unit 2 Social Institutions in India :  
(Changing nature)**

- 2.1 Marriage
- 2.2 Family
- 2.3 Caste

**Unit 3 Major Social Problems in India**

- 3.1 Social Problem – meaning and nature.
- 3.2 Population problem – causes, consequences of over population, and remedial measures.
- 3.3 Problems of Women – gender inequality, working women's problem, dowry, domestic violence (causes and remedies)
- 3.4 Farmer's suicide – causes and remedial measures

**Unit 4 National Integration**

- 4.1 Meaning and need of National Integration.



- 4.2 Unity in Diversity.
- 4.3 Obstacles to National Integration.
- 4.4 Measures to promote National Integration.

#### **Unit 5 Social Change in India**

- 5.1 Industrialization: Meaning, Characteristics and impact on Indian Society
- 5.2 Urbanization: Meaning, Characteristics and impact on Indian Society
- 5.3 Westernization: Meaning, Characteristics and impact on Indian Society
- 5.4 Modernization: Meaning, Characteristics and impact on Indian Society
- 5.5 Democratization: Meaning, Characteristics and impact on Indian Society

#### **Unit 6 Social reformers in India**

(Contribution of Social Reformers :-Social and Educational work and its Impact on Indian Society)

- 6.1 Raja RamMohan Roy
- 6.2 Swami Dayanand Saraswati
- 6.3 Mahatma Jyotiba Phule
- 6.4 Rajarshi Shahu Maharaj
- 6.5 Dr.Bhimrao Ramji Ambedkar

#### **Unit 7 Globalization and Mass Media**

- 7.1 Globalization – Meaning, Characteristics and impact on Indian society.
- 7.2 Mass Media Meaning and components (Newspapers, Radio, TV, Movies, Computer and Internet)
- 7.3 Impact of mass media on Indian Society.

#### **Unit-8:- Project Work (20 Marks)**

Project work has been newly included in the Standard XII Sociology Syllabus as per the new guidelines.



## Philosophy (46)

### Introduction

The world has entered into the 21<sup>st</sup> century which is perceived as a century of Science and Technology. The Scientific and Technological advancement has brought the world into one's house. Our nation cannot remain aloof from this world reality with which it is bound to be affected.

On the other hand, religious fundamentalism and terrorism are also bequeathed by the last century, both phenomena have posed challenges to value system.

It is the first and foremost responsibility and duty of philosophy as a discipline to make the students aware of this challenge and prepare them to confront it. Hence, the thrust of any new curriculum has to acquire social and moral Philosophy which will serve to prepare a critique of both tradition and modernity and preserve healthy elements in both and introduce new ideas if and when required.

It is in this situation and under these compulsions that Moral and Social Philosophy needs to be introduced at +2 level where students are quite receptive and prone to internalize what they are taught.

As problems of Moral and Social Philosophy are Philosophical problems and require philosophical method for their discussion, knowledge of Philosophy and Philosophical problems also turn out to be necessary.

### Objective

#### To enable students to

1. Understand the nature of Philosophy and philosophical problems along with the

basic branches of philosophy.

2. Understand the real nature and limitation of both tradition and modernity.
3. Develop the capacity of application of the principles to actual practice.
4. Acquire knowledge of fundamental concepts, principles and theories of philosophy.
5. Understand relation between individual and society.
6. Develop an ability to recognize the extent to which value judgements are involved in the selection of information.
7. Develop an ability to assess the relevance of information to the particular problem.
8. Develop interest in the study of philosophy.
9. Develop proper attitude towards philosophical enquiry.

### Std.XI

### MORAL PHILOSOPHY

#### Unit

#### Sub –Unit

- |           |  |
|-----------|--|
| <b>1.</b> | <b>1. Nature of Philosophy and nature of Moral Philosophy</b>  |
| 1.1       | Introduction :<br>Definition of Philosophy : Branches of Philosophy – Metaphysics, Epistemology, Ethics, Logic, Aesthetics |
| 1.2       | Definition of Moral Philosophy, its nature and scope, conduct and character, normative and descriptive sciences.           |
| 1.3       | Some Moral Concepts – Right, Good, Duty, Virtue  |



2. **2. Concept of Value**
  - 2.1 Meaning of Value
  - 2.2 Theory of Purushartha
3. **3. Evaluation of Action**
  - 3.1 Teleological theories – Hedonism (Charvaka), Utilitarianism (Mill)
  - 3.2 Deontological theories – Categorical imperative (Kant), Nishkama Karmayoga (Bhagavad Geeta)
4. **4. Theories of Punishment**
  - 4.1 Concept of Punishment
  - 4.2 Natural and Moral evil
  - 4.3 Presuppositions and purposes of Punishment
  - 4.4 Theories of Punishment – Deterrent, Retributive, Reformative
5. **5. Environmental Ethics**
  - 5.1 Relation of Man with Nature – Indian and Western Model
  - 5.2 Rights of Animals
6. **6. Applied Ethics**
  - 6.1 Nature and scope of applied ethics.
  - 6.2 Teaching Profession – Teacher - Student relationship
  - 6.3 Medical profession – Doctor - Patient relationship
7. **7. Project Work (20 marks)**  
Project Work has been newly introduced in standard XI Philosophy syllabus as per the new guidelines.

**Std. XII : Introduction to Philosophy**  
**Unit** **Sub –Unit**

1. **1. Nature of Philosophy**
  - 1.1 Definitions of Philosophy
  - 1.2 Value of Philosophy
  - 1.3 Relation of Philosophy to Natural Science and Religion
2. **2. Nature of Knowledge**

- 2.1 Concept of knowledge
- 2.2 Origin of knowledge
- 2.3 Types of knowledge
- 2.4 Sources of knowledge
  - 2.4.1 Western – Rationalism, Empiricism :- Perception, Intuition, Inference, Testimony
  - 2.4.2 Indian – Nyaya darshan – Pratyaksha, Anumana
3. **3. Theories of Truth**
  - 3.1 Sentence and Proposition
  - 3.2 The Correspondence theory of Truth
  - 3.3 The Coherence theory of Truth
  - 3.4 The Pragmatic theory of Truth
4. **4. Nature of Reality**
  - 4.1 Vaisheshika darshan – Sapta Padartha, Atomism
  - 4.2 Democritus' – Atomism
5. **5. Concept of self**
  - 5.1 Definition of self
  - 5.2 Empirical self
    - 5.2.1 Charvaka darshan, Jaina darshan
    - Bauddha darshan
  - 5.3 Transcendental self  
Advaita Vedanta darshan
6. **6. The Concept of God**
  - 6.1 Nature of God - characteristics of God.
  - 6.2 Relation between God and the world – Deism, Theism, Pantheism
  - 6.3 Arguments for the existence of God
    - 6.3.1 Cosmological
    - 6.3.2 Teleological
    - 6.3.3 Moral
  - 6.4 Problem of Evil.
7. **7. Project Work (20 marks)**  
Project Work has been newly introduced in standard XI Philosophy syllabus as per the new guidelines.



## Logic (47)

### Introduction

One of the important defining characteristics of 'man' is his rationality i.e. his capacity to think consistently and to draw conclusions from the information he receives.

Although this power is natural to every human being, scholars have identified the rules of reasoning which he makes use of, without being conscious of them. This is the Science of Logic. Traditionally, Logic was known and esteemed as the Queen of all Sciences as it is training of Logic, that sharpens reasoning capacity and makes one to understand arguments and detect fallacies in them if any. Logic thus happens to be the fundamental discipline useful for all branches of knowledge. With introduction of Logic at +2 Level, students will be able to understand, argue and convince with considerable amount of maturity. It will also contribute in enriching their power of critical thinking which is necessary in present situation and to save us from various irrational forces operative in society. Positively, it may also help in overcoming various crises confronted by us.

### Objective

#### To enable the students to

1. Acquire knowledge of fundamental terms, definitions, concepts, principles and theories of Logic.
2. Understand logic as the study of inference.
3. Understand the purpose of logic and enquiry in general.
4. Differentiate between various forms of statements and arguments.
5. Apply formal techniques to arguments.
6. Develop the ability of logical thinking.
7. Appreciate logical thinking.
8. Develop interest in logic.
9. Detect fallacies involved in arguments.
10. Make use of tools and techniques in logic for solving practical problems in their life.

### Std. XI

Unit	Sub -Unit
<b>1. 1. Nature of Logic</b>	
	1.1 Kinds of Inference <ul style="list-style-type: none"> <li>• Deductive</li> <li>• Inductive</li> </ul>
	1.2 Difference between two types of inferences
	1.3 Truth & Validity
<b>2. 2. Nature of propositions</b>	
	2.1 Nature of propositions - modern view
	2.2 Distinction between proposition and sentence
	2.3 Distinction between simple and compound propositions
	2.4 Distinction between truth –functional and non-truth-functional compound propositions, types of truth functional compound propositions
	2.5 Symbolisation of propositions <ul style="list-style-type: none"> <li>• Propositional constants</li> <li>• Propositional variables</li> <li>• Propositional connectives</li> </ul>
	2.6 Basic truth-tables for Propositional connectives
<b>3. 3. Decision Procedure</b>	
	3.1 Nature of decision procedure
	3.2 Truth-table – for statement forms



- 3.3 Tautology, Contradiction, Contingent  
3.4 Testing validity of arguments using truth-table method
- 4. 4. The Method of Deduction**
- 4.1 Deductive Proof  
4.2 Direct proof  
4.3 Rules of Inference and Rule Of Replacement  
4.4 Conditional proof
- Arguments
  - Tautology
- 5. 5. Introduction to Traditional logic**
- 5.1 Categorical Propositions  
5.2 A, E, I, O propositions  
5.3 Square of opposition of propositions  
5.4 Representation of A, E, I, O using Venn diagrams
- 6. 6. Types of Inductive inference**
- 6.1 Types of Inductive inference
- Ordinary inference
  - Simple enumeration
  - Analogy
  - Hypothetico – deductive method
- 7. 7. Non-formal fallacies**
- 7.1 Distinction between formal & non-formal fallacies  
7.2 Various forms of non-formal fallacies
- Division and composition
  - Accident and converse fallacy of accident
- Ignoratio Elenchi :
- Argumentum ad baculum
  - Argumentum ad hominem
  - Argumentum ad populum
  - Argumentum ad verecundiam
  - Argumentum ad misericordiam
  - Argumentum ad ignoratiam

**8. 8. Difinition**

- 8.1 Nature and purposes of definition  
8.2 Kinds of definition
- Ostensive
  - Extensive
  - Biverbal
  - Definition per genus et differentiam
  - Stipulative definition
  - Lexical definition

9. 9. Project work (20 marks)  
Project Work has been newly introduced in the Std. XI Logic syllabus as per the new guidelines.

**Std. XII**

**Section I :**

**Unit**

**Sub –Unit**

**1. 1. Traditional Logic**

Importance and relevance of logic to life.

- 1.1 Classification of propositions  
1.1.1 Distribution of Terms

- 1.2 Types of inferences –  
Mediate and immediate

- 1.3 Opposition of Propositions,  
1.3.1 Deciding relation of propositions on the basis of opposition of proposition  
1.3.2 Deciding inter value of propositions on the basis of opposition of propositions.

- 1.4 Conversion, Obversion, Education

**2. 2. Decision procedure**

- 2.1 Principle of reduction ad absurdum.  
2.2 Shorter Truth – table method

**3. 3. Deductive proof**

- 3.1 Indirect proof of tautology & arguments



**4. 4. Predicate Logic**

- 4.1 Need for Predicate Logic
- 4.2 Types of proposition
  - Singular
  - General (Existential universal)
- 4.3 Propositions, Function and deriving Propositions from propositional function and vice versa.
  - Instantiation and
  - Quantification / Generalization
- 4.4 Symbolization of propositions
- 4.5 Nature of quantificational deduction
- 4.6 Rules of quantificational deduction – U.I, U.G, E.I & E.G.(preliminary version)
- 4.7 Deductive proof of arguments involving quantifiers (Direct proof)

**5. 5. Grounds of Induction**

- 5.1 Material grounds of Induction
  - 5.1.1 Observation
  - 5.2.2 Experiment

**5.2 Formal grounds of Induction**

- 5.2.1 Notion of cause
- 5.2.2 Popular Notion of cause
- 5.2.3 Scientific Notion of cause

**6. 6. Hypothesis**

- 6.1 Definition and nature of hypothesis
- 6.2 Origin of hypothesis
- 6.3 Conditions of good hypothesis
- 6.4 Types of hypothesis
  - Working hypothesis
  - Ad Hoc hypothesis
- 6.5 Verification and confirmation of hypothesis
- 6.6 Established hypothesis as a law or theory of science.

**7. 7. Project work (20 marks)**

Project work has been newly introduced in the standard XII Logic Syllabus as per the new guidelines.



## Psychology (48)

### Introduction

Psychology is introduced as an elective subject at the Higher Secondary stage of school education. As a discipline, psychology specialises in the study of experience, behaviours and mental processes of human beings within a socio-cultural and socio-historical context. This course purports to introduce the learners to the basic ideas, principles and methods in psychology so as to enable them to understand themselves and their social world better. The emphasis is put on creating interest and exposure needed by learners to develop their own knowledge base and understanding.

The course deals with psychological knowledge and practices which are contextually rooted. It emphasises the complexity of behavioural processes and discourages simplistic cause-effect thinking. This is pursued by encouraging critical reasoning, allowing students to appreciate the role of cultural factors in behaviour and illustrating how biology and experience shape behaviour. The course while developing an appreciation of subjectivity, also focuses on multiplicity of worldviews.

It is suggested that the teaching-learning processes should involve students in evolving their own understanding. Therefore, teaching of psychology should be based on the use of case studies, narratives, experiential exercises, analysis of common everyday experiences, etc.

### Objectives

1. To develop appreciation about human behaviour and human mind in the context

of learners' immediate society and environment.

2. To develop in learners an appreciation of multidisciplinary nature of psychological knowledge and its applications in various aspects of life.
3. To enable learners to become perceptive, socially aware and self-reflective.
4. To facilitate students' quest for personal growth and effectiveness and to enable them to become responsive and responsible citizens.

### Std. XI

Unit	Sub -Unit
<b>1</b>	<b>1.0 Introduction to Psychology</b>
	1.1 Definitions - Wundt, Watson, Morgan & King, Feldman
	1.2 Branches of Psychology : Cognitive Psychology, Biological Psychology, Developmental Psychology, Social Psychology, Environmental Psychology, Health Psychology, Clinical and Counselling Psychology, Organisational Psychology, Educational Psychology
	1.3 Recent Perspectives of Psychology: Behaviouristic perspective, Psychoanalytic perspective, Cognitive perspective, Biological perspective, Humanistic perspective
	1.4 Psychology in Everyday Life
	1.5 Psychologists at work : Clinical Psychologists, Counselling Psychologists, Community



- Psychologists, School Psychologists, Organisational psychologists.
- 2 2.0 Methods of Psychological Enquiry**
- 2.1 Objectives of Psychological enquiry: Description, Prediction, explanation, control and Application
- 2.2 Important Methods of data collection: Observational method, experimental method, correlational method, Survey method, Psychological testing, case study and project method.
- 3 3.0 Foundations of Human Behaviour**
- 3.1 Heredity : Genes and Chromosomes
- 3.2 Central Nervous System : Brain and Spinal chord
- 3.3 Endocrine System : Pituitary gland, thyroid gland, adrenal gland, gonads.
- 3.4 Socio – cultural Factors : Family, Community, faith, gender, caste and disability
- 3.5 Socialization : Acculturation and Enculturation
- 4 4.0 Human Development**
- 4.1 Meaning of Development : Life-span perspective on development, Growth, Development, Maturation and Evolution
- 4.2 Principles of Development
- 4.3 Factors Influencing Development : Heredity and environment
- 4.4 Stages of Development : Prenatal stage, infancy, childhood, adolescence, adulthood and oldage
- 4.5 Context of Development : Microsystem, mesosystem, exosystem, macrosystem Chronosystem
- 5 5.0 Attention and Perception**
- 5.1 Distinction between attention and perception
- 5.2 Attentional Processes : Selective attention, divided attention, span of attention, attention deficit hyperactivity disorder
- 5.3 Principles of perceptual organization : Principle of proximity, principle of similarity, principle of continuity, principle of smallness, principle of symmetry, principle of surroundedness, principle of closure.
- 5.4 Illusions : Geometric illusions and apparent movement illusions
- 5.5 Socio-cultural influences on perception : differential familiarity, salience of stimuli, habits of perceptual inference.
- 6 6.0 Learning**
- 6.1 Nature of learning : Definition and features of learning
- 6.2 Classical and Operant Conditioning: Pavlov’s experiment on classical conditioning, Skinner’s experiment on operant conditioning
- 6.3 Observational Learning : Imitation, social learning and modelling
- 6.4 Learning Styles : Relational style and analytical style
- 6.5 Learning Disabilities : Symptoms of learning disabilities.
- 7 7.0 Human Memory**
- 7.1 Nature of Memory : Definition, stages of memory
- 7.2 Memory Systems : Sensory, Short-term memory and long-term memory



7.3 Measurement of Memory : Recall, recognition, re-learning and reconstruction

7.4 Nature and Causes of Forgetting : Ebbinghaus's curve of forgetting, trace decay, interference, retrieval failure

7.5 Improving Memory : Keyword method, method of loci, chunking, first letter technique, minimising interference

7.6 Eyewitness Memory

## 8 8.0 Motivation and Emotion

8.1 Nature of motivation : Motivation cycle

8.2 Types of motives :  
Biological motives and Psychosocial motives

8.3 Maslow's hierarchy of needs

8.4 Nature of Emotion : Definition and Types of Emotions by Plutchik

8.5 Expression of Emotions : Culture and emotional expression, culture and emotional labelling

8.6 Enhancing Positive Emotions : Personality traits, positive meaning, quality connections, being engaged, faith and positive interpretations.

### Practicals

Practicals of Psychology is classified among three major aspects : Project, Experiments and Small Studies. There will be continuous evaluation of these practicals by the internal examiner who will essentially be the teacher supervising and monitoring the practical work. He will internally evaluate the student for 20 marks and submit it to the examining authority.

### The Nature of Practicals

#### A : Project

The student shall be required to undertake one project which will have impetus on understanding of human behaviour. The project would involve the use of different methods of enquiry and related skills.

#### B : Experiments :

The student shall undertake Five experiments which are identified as below:

1. Span of attention
2. Muller-tyer Illusion
3. Recall and Recognition
4. Substitution Learning
5. Memory Span for Digits

OR

#### C : Small Studies

The student shall undertake small studies in the form of case studies related to the topic covered in the course.

## Std.XII

### Unit

### Sub -Unit

#### 1 Intelligence

Definitions of intelligence

History of intelligence testing

Distribution of intelligence quotient in population

Types of intelligence tests

Aptitude

Emotional intelligence

#### 2 Personality

Definitions of Personality

Factors influencing personality

Major approaches to the study of Personality

Assessment of personality



**3 Stress Management**

Nature of Stress

Sources of Stress

Types of Stress

Stress management techniques

Promoting Positive health and well-being

**4 Psychological Disorders and Therapies**

Concept of abnormality

Classification of psychological disorders

Major Psychological disorders

Types of therapies

**5 Attitude**

Definition of attitude

Attitude formation

Change of attitude

Prejudice

**6 Social Influence**

Nature of Social influence

Dynamics of Social influence

Influence of group on individual behaviour

Intergroup conflicts

**7 Psychology and Life**

Human-environment relationship

Environmental effects on human behaviour

Promoting pro-environmental behaviour

Psychology and Social Concerns

**8 Developing Psychological Skills**

Nature

Effective Psychological Skills

Counselling Skills

Communication Skills

**Practicals : (Based on continuous Evaluation)**

Practicals of Psychology is classified among three major aspects : Project, Psychological Testing and Case Studies. There will be continuous evaluation of these practicals by the internal examiner who will essentially be the teacher supervising and monitoring the practical work. He will internally evaluate the student for 20 marks and submit it to the examining authority under his hand and signature.

**The Nature of Practical****A. Project**

The student shall be required to undertake one project which would involve the use of different methods of enquiry and related skills.

OR

**B. Psychological Testing**

The student shall be required to conduct five Psychological tests related to the topic covered in the course. Psychological testing would involve using standardised Psychological assessment devices in different domains i.e. intelligence, aptitude, personality, stress, anxiety, depression, attitude, prejudice etc.

OR

**C. Case Studies**

The Student shall be required to prepare one case profile. The case profile will include developmental history of the subject using both qualitative (observation, interview, rating etc.) and quantitative approaches.



## Economics (49)

### Introduction

The Framework of this curriculum is based on National Economic Policy to explain the students the nature of Indian Economy. Problems of Population explosion, Poverty, Unemployment, Measures to remove these problems. What are the Infra-structure facilities in the country, its development and its importance is included in the curriculum.

To make the students understand the above problems. This subject should be explained at Micro and Macro level. In future this curriculum will help students for higher education.

### General Objective

- 1) To make the students understand the changes in Indian Economy and problems faced by the economy.
  - 2) To make them inquisitive about the infra structural facilities in Indian Economy.
  - 3) To explain to them the Principles of Micro & Macro Economics
  - 4) To make students aware of concepts like Money, Banking, National Income, Public budget etc.
  - 5) To create awareness among the students regarding qualities required for skilled entrepreneur (Leadership qualities)
- 3) To create interest among the students to know the dynamic nature of Indian Economy and arising problems. In order to create economic equality, weaker and socially deprived groups are to be involved in the process of economic development.
  - 4) To create awareness among students about objectives of new economic policy.
  - 5) To prepare the students to understand the process of economic planning in Indian Economy.
  - 6) To understand the basic Infra structural facilities of Indian Economy.
  - 7) To motivate the students to collect, organize and classify graphical presentation of statistical data.
  - 8) To motivate skillful abilities of the students to make graphical presentation of data.
  - 9) To introduce students, Index numbers and construction of Index numbers.
  - 10) To prepare them to make use of the technical knowledge of the curriculum in their day to day life.

### Specific objectives

- 1) To help the students to understand the basic concepts of economic growth & economic development.
- 2) To develop ability of student to understand the challenges before the Indian Economy.

## Std. XI

### A Section – Indian Economic development

- 1) Economic development & Economic growth
- 2) Quality of human life – Introduction – Physical quality of Life Index & Human Development Index.
- 3) Major challenges before Indian Economy
  - a) Population
  - b) Poverty



- c) Unemployment
- 4) Economic Reforms since 1991 & its main features.
  - a) Liberalisation
  - b) Privatisation
  - c) Globalisation
- 5) Economic Planning
  - a) Meaning and objectives
  - b) 10<sup>th</sup> Five year plan – a study
- 6) Infra structural development in India.

### **B Section – Introduction to statistics**

- 7) Introduction to statistics
- 8) Collection & organization of Data
- 9) Graphical presentation of data
- 10) Measures of Central Tendency  
Mean, Median & Mode
- 11) Index Numbers.

### **Std. XII**

#### **Section A**

##### **Micro Economics**

- 1. Introduction to Micro Economics
- 2. Consumers behavior
- 3. a. Analysis of Demand  
b. Elasticity of Demand
- 4. Analysis of Supply
- 5. Types of Market & Price determination under Perfect competition
- 6. Factors of Production

#### **Section B**

##### **Macro Economics**

- 7. Introduction to Macro Economics
- 8. National Income
- 9. Determinants of Aggregates
- 10. Money
- 11. Commercial Bank
- 12. Central Bank
- 13. Public Economics

### **Std Xi - Economics**

#### **Topics for Project (20 Marks)**

- 1) Comparative study of some families based on income, expenses on health, education, entertainment etc.
- 2) An interview of an entrepreneur.
- 3) Study of the relationship between poverty and size of family.
- 4) Information about the relationship between number of children in a family and standard of living.
- 5) Report of visit to Employment Exchange.
- 6) Information about jobs created through Employment Guarantee Scheme.
- 7) An interview of self-employed persons.
- 8) Visit to Agriculture College/Industrial Training Institute/District Industrial Centre.
- 9) Information about economic & social inequality existing in various families.
- 10) Study of the effects of globalization on rural and urban families.
- 11) Information about Placement Agencies.
- 12) Study of impact of New Economic Policy on agriculture/industry/ service sector.
- 13) Information about families using solar energy (solar cooker, solar water heater etc.)
- 14) Visit to places using non-conventional energy sources.
- 15) An interview of some people using public transport.
- 16) An interview of some people using private transport.
- 17) Collect information from newspaper related to different economic events, during fifteen days.
- 18) Collect the data from 25 families regarding number of family members,



sex, age, education and occupation. From the collected data, classify families according to number of members per family, sex wise distribution, age distribution of all members, education wise distribution, occupational distribution.

- 19) Collect prices of 7 commodities on the 1<sup>st</sup> day of the month and on the last day of the month and find price Index numbers using Simple Aggregate Method and Average of price relatives methods.
- 20) Information about employment opportunities arising due to different modes of transport.

**Note :** The above list of projects is given only as guideline.

## Std. XII

### Economic Topics for Project (20 Marks)

- 1) Visit any cottage industry and collect information about its income and expenses.
- 2) Visit some families and note down observations regarding how utility of different commodities is subjective and relative.
- 3) Prepare a chart for Marginal Utility and Total Utility of any commodity consumed by you.

- 4) Comparative study of individual demand schedules of any one commodity of two families.
- 5) Visit a grocery shop and collect information about changes in demand and changes in price of wheat for the period of 5 months.
- 6) Visit retailers of any commodity & collect information about prices & supply.
- 7) Collect information about prices charged for toothpaste, bathing soap etc. by different firms under monopolistic competition.
- 8) An interview of an entrepreneur.
- 9) An interview of skilled and unskilled labour engaged in different sectors.
- 10) Survey of people using credit cards & debit cards.
- 11) Visit any Commercial Bank & collect information about its functioning.
- 12) Collect information of different Banking instruments like cheques, demand drafts, etc.
- 13) Collect information about E-Banking
- 14) Collect information about changes in the policies of Reserve Bank of India.
- 15) Collect information of the current budget from newspaper.

**Note :** The above list of projects is given only as guideline.



## Book-Keeping and Accountancy (50)

### Introduction

A person who invests his hard earned money into business whether big or small expects good returns. To calculate returns businessman has to maintain systematic record of all transactions. One of the primary function of accounting is to provide vital information for decision making to external and internal users. Book Keeping being defined as systematic record of business transactions achieves this purpose. Also partnership Act, Companies Act, Co-operative Societies Act makes it mandatory to keep records systematically for knowing operating results.

Book-keeping and Accountancy is one of the core subjects in Commerce faculty. It is a compulsory subject at graduate and post-graduate level. Book-keeping is no doubt one of the most interesting, practically relevant and important subject for students aspiring professional courses like C.A. C.S and I.C.W.A.I.

The object of introducing this subject at Std. XI is to develop conceptual understanding of principles of accounting system which identifies, analyses, classifies, measures, summaries and records all business transactions in significant manner in separate set of books.

The business transactions are first recorded in primary books and subsequently posted in the ledger. At the end of accounting year it helps in presenting the financial position and result of operation of that business. Hence accounting is regarded as the language of business.

Book Keeping and Accountancy is both a science as well as an art. As a science

teacher, commerce teacher must follow basis assumptions and postulates systematically to understand why a particular thing is done in a particular manner. As an Art students, commerce students should be able to apply the skill in maintaining books of account.

The role of accounting has been diverging with the changes in the economic trend as well as the effect of Globalisation, Liberalisation and Privatisation. The Board of studies for Book Keeping and Accountancy has diverted its efforts to make the syllabus more innovative, informative and practical oriented which will enable students to face challenges posed in today's competitive era.

### Objectives

#### To enable the students to

1. Acquire knowledge of basic terms, definitions, concepts and conventions of Book-Keeping and Accountancy.
2. Understand business transactions and their effects on business operations.
3. Study different documents used for business transactions by knowing their contents and formats.
4. Know and practice the basic principles of Book-Keeping and Accountancy.
5. Understand and practice the contents and specimen of various books of account.
6. Develop the skill of calculations and accuracy.
7. Develop the technique of entering the transactions into the books of accounts with the understanding of their ultimate effect on final accounts.
8. Prepare the final accounts of proprietary concern, partnership firm, not for profit



- organization and learn to analyze them.
9. Ascertain profit or loss from incomplete records.
  10. Learn to use computer in accounting.

### Std. XI

**Sr.No.**

**Topic**

**1. A. Introduction of Book-keeping and Accountancy**

- A.1 Meaning and definition
- A.2 Objectives
- A.3 Importance and Utility
- A.4 Difference between Book-Keeping and Accountancy
- A.5 Basis of Accounting - Cash basis and Accrual basis.
- A.6 Qualitative characteristics of accounting information
- A.7 Financial Accounting, Cost Accounting, Management Accounting

**B. Basic Accounting Terminologies**

- B.1 Business Transactions - Cash Transactions and Credit Transactions
- B.2 Goods
- B.3 Profit, loss-Operating and Non-operating profits, Normal gains and abnormal gains with examples. Difference between profit and Income
- B.4 Assets, Liabilities, Net-worth/ Owners Equity Assets: Fixed/ Current/Tangible/ Intangible/ fictitious
- B.5 Contingent Liability
- B.6 Capital, Drawings
- B.7 Debtors, Creditors
- B.8 Capital Expenditure, Revenue and Deferred Revenue Expenditure

- B.9 Cash discount and Trade discount
- B.10 Solvent and Insolvent
- B.11 Accounting Year
- B.12 Trading Concerns and 'Not for Profit' Concerns
- B.13 Goodwill

**C. Accounting Concepts, Conventions and Principles and Indian Accounting standards concepts and objectives**

- C.1 Meaning and Importance
- C.2 Business Entity
- C.3 Money measurement
- C.4 Cost
- C.5 Consistency
- C.6 Conservatism
- C.7 Going Concern
- C.8 Realization
- C.9 Accrual
- C.10 Dual Aspect
- C.11 Disclosure
- C.12 Materiality
- C.13 Revenue
- C.14 Matching
- C.15 Accounting Standards

**2. A. Meaning and fundamentals of Double Entry Book-keeping System**

- A.1 Study of Double Entry Book-keeping system.
- A.2 Advantages of Double Entry Book-keeping system.
- A.3 Comparison of Double Entry Book-keeping system with Conventional Accounting system.

**B. Classification of Accounts and Accounting equations Rules**

- B.1 Types of accounts-personal, Impersonal accounts- Real



- accounts, Nominal accounts.
- B.2 Rules for different accounts for passing entries.
- B.3 Illustrations
- B.4 Accounting equations Assets, Liabilities, Revenue and capital expenses
- B.5 Brief: Explanation about IFRS
- 3. Source documents required for Accounting**
- 3.1 Meaning, contents and specimen.
- 3.2 Voucher-internal, external voucher
- 3.3 Petty cash and cash voucher
- 3.4 Cash and Credit memo
- 3.5 Receipt
- 3.6 Debit and Credit note
- 3.7 Pay-in-slip
- 3.8 Withdrawal slip
- 3.9 Cheque-Bearer, Order, Crossed, Account payee
- 3.10 Bank pass book, Bank Statement and Bank advice
- 4 Journal**
- 4.1 Meaning, Importance and utility of Journal.
- 4.2 Specimen of Journal
- 4.3 Writing of Journal entries
- 5. Subsidiary Books**
- 5.1 Meaning, need and specimen of different Subsidiary Books.
- 5.2 Simple Cash Book with cash column only
- 5.3 Cash Book with cash and bank columns
- 5.4 Analytical Petty Cash Book-imprest system.
- 5.5 Purchase Book
- 5.6 Sales Book
- 5.7 Purchase Return Book
- 5.8 Sales Return Book
- 5.9 Bank Book
- 5.10 Journal Proper, Transactions of Discounts to be taken in Journal Proper
- 6. Ledger**
- 6.1 Meaning, need and contents of ledger be explained
- 6.2 Specimen of ledger
- 6.3 Posting of entries from Subsidiary books to ledger
- 6.4 Balancing of ledger accounts.
- 7. Bank Reconciliation Statement**
- 7.1 Meaning, need and importance
- 7.2 Reasons for difference in bank balance as per cash book and balance as per bank pass book
- 7.3 Specimen of Bank Reconciliation Statement
- 7.4 Preparation of Bank Reconciliation Statement
- 8. Trial balance**
- 8.1 Meaning and Purpose
- 8.2 Specimen of Trial Balance
- 8.3 Preparation of Trial Balance from given balances of accounts.
- 9. Errors and their rectification**
- 9.1 Meaning and effects of errors.
- 9.2 Types of errors - Errors of principles, Errors of Ommission, Errors of commission and Compensating Errors.
- 9.3 Steps to locate errors
- 9.4 Errors affecting and not affecting Trial Balance
- 9.5 Treatment of balance of suspense account
- 9.6 Rectification entries
- 10. Depreciation, Provisions and Reserves**
- 10.1 Depreciation : Meaning, Need and Factors affecting depreciation.



- 10.2 Methods of computation of Depreciation : Straight Line Method, Written Down Value Method (Excluding Change in method)
- 10.3 Accounting Treatment of Depreciation : By charging to asset account by creating Provision for depreciation / accumulated depreciation account.
- 10.4 Provisions and Reserves : Meaning, Objectives and Difference between provisions and Reserves.
- 10.5 Types of Reserves : Revenue Reserve, Capital Reserve, General Reserve, Specific reserves, Secret reserves.

## 11. Financial statements of Proprietary concern

Financial Statements- Meaning, objective and Importance

11.1 Preparation of Trading Account

11.2 Preparation of Profit and Loss Account

11.3 Preparation of Balance Sheet

11.4 Effects of following adjustments only

- a. Closing stock
- b. Depreciation
- c. Bad and Doubtful debts
- d. Provision for discount on Debtors and Creditors
- e. Outstanding expenses
- f. Prepaid expenses
- g. Accrued income
- h. Income received in advance
- i. Drawings
- j. Goods distributed as free sample

## 12. Computer in Accounting

12.1 Introduction to Computer Accounting

System :

Components of CAS, Features, Grouping of Accounts, using software of C.A.S.

- 12.2 Application of computer accounting  
Automation of accounting process, designing accounting reports, data exchange with other information system.

## Project Work

1. A study of non-operating expenses of proprietary concern with examples and documents.
2. A study of various policies of company as AS-2, AS-6 and AS-10 from annual report.
3. A comparative study of conventional and modern system of accounting.
4. Analytical study of all assets or documents in your family.
5. Collection of all types of documents used in the banks and office.
6. A report on organised exhibition on all source documents in your college.
7. Visit to any proprietary concern and preparation of journal of 8 days with the help of business transactions.
8. A record of different imaginary transactions for 10 days of a new business with capital of ₹ 1,00,000, like Stationery shop / Newspaper stall / Medical store / Vegetable stall.
9. A study of account books maintained by Mahila Bachat Gat in your area and preparation of financial report.'
10. Ledger accounts and trial balance of any business concern with the help of a journal.



11. A report on procedure for opening various types of bank accounts.
12. A visit to factory or workshop or small scale industry and a study of various methods adopted for calculation of depreciation.
13. Final Accounts with the help of journal / subsidiary books of sole trading concern.
14. Journalising of household transactions for a month.
15. Effects on purchasing power of a customer due to discount.
16. Classification of family activities into monetary and non-monetary activities.
17. Preparation of Bank Reconciliation Statement from given extracts of Cash book and Pass book balances. (at least 15 reasons expected).
18. An analytical study of 25 different ledger accounts.
19. A project on the types of accounts related to goods.
20. Any one Accounting Package.

**Note :**

The above list of projects is given only as guidelines. Students are free to select any topic for project related to the syllabus.

**Std. XII****Sr. No.****Topic****1. Introduction to Partnership**

- 1.1 Meaning and definitions
- 1.2 The Indian partnership Act 1932
- 1.3 Methods of capital accounts
  - i) Fixed Capital Method
  - ii) Fluctuating Capital Method

**2. Partnership Final Accounts**

- 2.1 Introduction and Necessity of

preparation of Final Accounts with following adjustments.

**Adjustments**

- a. Closing stock
- b. Outstanding expenses
- c. Prepaid expenses
- d. Income received in advance
- e. Income receivable
- f. Bad debts
- g. Provision for doubtful debts
- h. Reserve for discount on debtors and creditors
- i. Depreciation
- j. Interest on capital, drawings and loans
- k. Interest on investment and loans
- l. Goods destroyed by fire/ accident (insured / uninsured)
- m. Goods stolen
- n. Goods distributed as free samples
- o. Goods withdrawn by partners
- p. Unrecorded purchases and sales
- q. Capital expenditure included in revenue expenses and vice-versa
- r. Bills Receivable dishonoured
- s. Bills payable dishonoured
- t. Deferred expenses
- u. Capital receipts included in revenue. Receipts and vice-versa
- v. Commission to working partner/ Managers on the basis of Gross profit, Net profit, sales, etc.

**3. Reconstitution of Partnership**

- 3.1 Meaning and different ways of reconstitution
- 3.2 Admission of a partner
  - 3.2.1 Meaning and Need
  - 3.2.2 Capital brought by new partner
  - 3.2.3 New profit sharing ratio
  - 3.2.4 Sacrifice ratio
  - 3.2.5 Goodwill - Meaning, Methods



of valuation and treatment of goodwill.

- i) Average profit method
- ii) Super profit method

3.2.6 Adjustment of accumulated profits and losses.

3.2.7 Revaluation of assets and liabilities

3.2.8 Adjustment of capitals

3.3 Retirement / Death of a partner

3.3.1 Meaning, need

3.3.2 New ratio

3.3.3 Gain ratio

3.3.4 Treatment of goodwill

3.3.5 Adjustment of accumulated profits and lossess

3.3.6 Revaluation of assets and liabilities

3.3.7 Adjustment of capital

3.3.8 Amount due to retiring parter

3.3.9 Death of partner

#### 4. Dissolution of Partnership Firm

4.1 Simple dissolution

4.2 Dissolution under Insolvency situation

#### 5. Accounts of “Not for Profit” concerns

5.1 Introduction, meaning and features of “Not for Profit” concerns.

5.2 Receipts and Payments Account-meaning and features. Distinction between Income and Expenditure account.

5.3 Preparation of Income and Expenditure Account and Balance Sheet with the following

##### a) Additional Information

1. Outstanding expenses and prepaid expenses of the current and previous year

2. Accrued income and income received

in advance

3. Subscription received in advance and Subscription outstanding of the current and previous year

4. Depreciation

5. Capitalisation of entrance fees.

6. Creation of special funds out of donations

7. Stock of stationery

8. Opening balances of assets and liabilities

##### b) Important Items

Entrance fess, Subscriptions, Legacy, life membership fees, Sale of old assets, Scrap, News papers, Specific donation, General Donations, Specific Funds, Endowment fund

#### 6. Single entry system

6.1 Introduction

- Meaning of single entry system.
- Difference between single entry and double entry system.

6.2 Preparation of statements

6.3 Additional information.

- Additional capital
- Drawings
- Depreciation on fixed Asset
- Bad Debts
- Reserve for Doubtful Debts
- Undervaluation and Overvaluation of Assets and Liabilities
- Interest on loan
- Interest on capital
- Interest on Drawings
- Partners salary
- Outstanding / Unpaid expenses
- Prepaid Expenses/ Expenses paid in advance.
- Illustrations



## 7. Bill of Exchange (Only Trade Bill)

- 7.1 Introduction, necessity, Meaning, Definition of Bill of Exchange
- 7.2 Draft/format of Bills, Parties to the Bill of Exchange, Acceptance of Bill, Terms of Bill, Days of Grace, Date of maturity, Due Date, Types of Bill
- 7.3 Honouring of Bill, Dishonour of Bill, Noting and Protesting of Bill, Notary Public and Noting Charges
- 7.4 Accounting Treatment of Bill by the Drawer/Holder and Drawee in following cases
  - a) Retaining the Bill till due date. honour/dishonour, insolvency of the drawee/ acceptor
  - b) Endorsement of the Bill, Honour/dishonour and also insolvency of acceptor
  - c) Discounting the Bill with the Bank honour/dishonour and insolvency.
  - d) Sending the Bill to the Bank for collection, honour/ dishonour and insolvency
  - e) Renewal of Bill-Reasons for Renewal of the Bill. Renewal of Bill with or without charging interest
  - f) Making part payment of basic amount, interest and noting charges and drawing of new Bill
  - g) Honour/dishonour of New Bill
  - h) Insolvency of the acceptor and settlement of his account
  - i) Retirement of Bill
  - j) Journal Entries and Ledger

## 8. Company Accounts Part-I

### Accounting for shares

- 8.1 Share and share capital, Meaning, Nature and Types

- 8.2 Accounting for Share Capital: Issue and Allotment of Equity Shares. Private placement of shares. Public subscription of shares. Over subscription and Under subscription of shares. Issue at Par and premium, and at discount, Calls in advance in arrears, Issue of shares for consideration other than cash
- 8.3 Accounting treatment of forfeiture and re-issue
- 8.4 Disclosure of Share capital in Company's Balance Sheet (Horizontal form)

## 9. Company Accounts Part-II

### Accounting for Debentures

- 9.1 Debentures : Meaning, Issue of debentures at par, at premium and at discount
- 9.2 Issue of debentures for consideration other than cash. Interest on Debentures

## 10. Analysis of financial statements

- 10.1 Financial statement Analysis: meaning, objectives and limitations
- 10.2 Tools for financial statement Analysis-meaning of comparative statements, common size statements, cash flow analysis, and Ratio analysis
- 10.3 Accounting Ratios : Meaning objectives and classification of Ratios
- 10.4 Introductions to current ratio, liquid ratio, Gross profit ratio, operating profit ratio and Net profit ratio. ROI, ROCI



## Project Work

- 1) Visit to Partnership Firm and study the management of the firm and a report on it.
- 2) A report on procedure of registration of Partnership Firm under Partnership Act 1932.
- 3) Preparation of Financial statement with the help of Journal / subsidiary books of any partnership firm.
- 4) Analytical study on various adjustments in Final Accounts of Partnership Firm.
- 5) A report on procedure of winding up Partnership Firm.
- 6) Study of the methods of valuation of goodwill and accounting treatment in case of Admission, Retirement or Death of a partner.
- 7) Visit to any not for profit concern. e.g. Library, Sports club, Mahila Bachat Gat, Public Hospitals, Educational Institutions, Temples, Masjids, Gurudwaras, Ganesh Mandal, etc. and preparation of a report on such visit or visits.
- 8) Analysis of the school / college transactions into revenue and capital receipts and revenue and capital expenditure.
- 9) Study of revenue and capital receipts, revenue and capital expenditure of minimum any ten non profit concerns.
- 10) Comparative study of Profit Organisations and 'Not for Profit' organisations and analysis of adjustments in final accounts of not for profit concern / organization.
- 11) Preparation of Report on various treatments of Bills of Exchange (Trade bill)
- 12) A visit to a cloth merchant who is maintaining his books of accounts under single entry system. Preparation of statement of affairs and statement of profit or loss from the data collected.
- 13) A visit to a Bank & preparation of a report on the procedure of discounting and collecting Hundies (Bills of Exchange)
- 14) An interview with a sharebroker.
- 15) A report on the procedure of opening a DEMAT Account.
- 16) A report on the procedure of purchasing and selling of shares through DEMAT Account.
- 17) Visit to a company and preparation of informative report on the procedure of issue of shares or Debentures.
- 18) A comparative study of different ratios to be used in the Annual Report of a company.

**Note :**

The above list of projects is given only as guidelines. Being creative and innovative, students may select any topic for project related to the syllabus.



## Organization of Commerce and Management (51)

### Introduction

Now it becomes necessary to give formal, traditional, recent education in Commerce and Industry along with practical knowledge so as to enable the students to have good understanding of the basic concepts of globalised world and its relationship with the society.

Council of Boards of School Education in India ( COBSE) has taken the responsibility of bringing out 'Common contents in commerce' at + 2 stages of secondary level. It is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. Information Technology is becoming a part of educational operations. Computerized systems are fast and replacing other systems. This curriculum will prepare students to analyse, manage, evaluate and respond to change which affects seriously. It provides a way of looking at and interacting with the business environment.

This syllabi introduces 80-20 pattern of evaluation. Comprising 80 marks Theory and 20 marks practical being need of the time. Practical approach is introduced. After doing a comparative study of syllabi of different Boards like C.B.S.E, ICSE, regarding their syllabi at + 2 level, this curriculum is prepared which shows common contents in commerce at the national level. The suggestions and recommendations received from various Boards regarding commerce subjects are considered in this curriculum. It allows students to appreciate

that business is an integral component of society and develops an understanding of many social and ethical issues. Besides, it also informs students of a range of study and work options and bridge the gap between Secondary and Higher secondary education.

### General Objective

- To develop student's understanding of the
- Processes of business and its environment.
- To acquaint students with the dynamic nature and inter - dependent aspects of business.
- To help the students understand the economic and social significance of business activity.
- To acquaint students with the practice of managing the operations and resources of business.
- To enable the students to be aware of socio – economic and ethical dimensions of business.
- To acquire with the knowledge of new trends in the field of business.
- To enhance the interest of students while doing the practical work like projects.

### Specific Objectives

- To acquire the knowledge of nature and scope of business, small business.
- To understand private, public and global enterprises including Internal trade.
- To know about international business.
- To understand about business environment.



- To know about marketing process.
- To understand the nature and significance of management.

**Note :**

- 1) This syllabus is prepared according to the guidelines of N.C.F 2005.
- 2) This syllabus is compared with CBSE and ICSE Board – XI and XII syllabi pattern.
- 3) The instructions introduced in N.C.F. – 2005 are included in this syllabus.
- 4) While considering the N.C.F. 2005 it is observed that in XI-syllabi unit No. 7 and 8 and in XII syllabi unit No. 9 and 10, are already included in the subject-Secretarial Practice in the current syllabus. In view of this, to avoid the repetition of the above mentioned units of Stds. XI and XII these topics are deleted.
- 5) CBSE and ICSE BOARDS DO NOT have the subjects ‘Secretarial Practice’ and ‘Co-operation’. These subjects are available only in Maharashtra State. Hence, the Board of studies proposes that no change is necessary in S.P. and Co-operation as these are newly constructed (Except, Business Finance to be included in S.P.) subjects.

**Std. – XI**

**UNIT-1 Nature and Scope of Business**

- Concept and characteristics of business
- Business, Profession and Employment-Meaning and distinctive features.
- Objectives of business-economic and social, role of profit in business.
- Classification of business activities- Industry and Commerce.
- Industry – Types of industries- primary,

secondary, tertiary.

- Commerce-Trade-Auxiliaries.
- Business risks – nature and causes.

**UNIT-2 Small Business**

- Small scale industry- Tiny sector, cottage and rural industry.
- Role of small business in rural India.
- Problems of small business in India.
- Government Assistance and special schemes for industries in rural, backward and hilly areas.

**UNIT-3 Private, Public and Global Enterprises.**

- Private Sector and Public Sector.
- Forms of organizing public sector enterprises – Departmental undertaking, Statutory corporation, Government company.
- Changing role of public sector.
- Global Enterprises (Multinational companies)
- Joint Ventures – meaning, benefits.

**UNIT- 4 Internal Trade**

- Meaning and types of internal trade Wholesale Trade and Retail Trade.
- Services of a wholesaler and a retailer.
- Types of Retail Trade -
- Itinerant retailers and Fixed shops, Departmental store, Super market, Chain stores.
- Role of Chamber of Commerce and industry.

**UNIT - 5 International Business**

- Nature, importance, scope and complexities involved in international business.
- Basic information about ways of entering into international business.
- Contract manufacturing, licensing



- franchising, joint ventures and setting up wholly owned subsidiaries.
- Export – import procedures and documentation.
- Foreign Trade promotion organizational support and incentives. Nature and importance of export processing zone/ Special Economic zones.
- International Trade Institutions and Agreement.  
W.T.O.UNCTAD, WORLD BANK, I.M.F.

### **UNIT-6 Business Environment**

- Business Environment – meaning and importance.
- Dimensions of Business Environment – Economic, social, Technological, political and legal.
- Economic environment in India. Impact of Government policy changes on business and industry with special reference to adoption of the policies of liberalization privatization and globalization.

### **UNIT- 7 Marketing**

- Marketing – meaning, functions, role.
- Distinction between marketing and selling.
- Marketing Mix – concept and elements-
- Product – nature, classification, branding labelling and packaging.
- Physical distribution – meaning, role Channels of distribution – meaning, types, factors determining choice of channels.
- Promotion – meaning and role, promotion mix, Role of Advertising and personal selling objections to Advertising.
- Price – factors influencing pricing.

### **UNIT-8 Nature and significance of management**

- Management – concept, objectives, importance

- Nature of management, management as Science, Art, profession.
- Levels of management – top, middle, supervisory (first level).

### **Special Note :**

Readers of this textbook may find some extra information in the various topics, which is related to the current reference and changes in the commercial business environment. The object of this information is to give current changes and updated reference to the students. No questions will be set on this extra information introduced in the textbook.

### **Some Subjects for Projects (Based on XI Syllabi)**

#### **Organization of Commerce and Management**

- 1) Information about Automatic Machines
- 2) Report of service industry
- 3) Report of seasonal goods
- 4) An interview of an Agent
- 5) Different types of insurance policies
- 6) Pictorial presentation & information about a Mall
- 7) Different / Samples of Quotations
- 8) A visit to a manufacturing industry
- 9) An interview of a wholesaler / Retailer
- 10) An interview of two successful self – employed persons
- 11) An interview of a Franchiser
- 12) E – Commerce: Need of today's business world
- 13) Different attractive packagings
- 14) A visit to a Bank
- 15) Collection of banking instruments of various banks  
(Cheques, Demand Drafts, Pass book, withdrawal, Pay- in- slips etc)



- 16) Employment opportunities arised due to transport
- 17) Attractive Advertisements – Advertisements in the news papers, T.V. media, Radio Advertising, etc.
- 18) Report of Branded goods
- 19) A visit to a warehouse
- 20) A visit to well equipped commercial office.

**N.B** – Students are free to select any topic other than the topics given above but it must be related to the syllabus

### Specific Objectives

- To know about different forms of business organizations and Business services.
- To understand the emerging modes of business.
- To know about social responsibilities of business and business ethics.
- To understand the concept of consumer protection and role of consumer organisations.
- To understand the principles, functions of management.
- To know about Entrepreneurship development.

## Std. XII

### UNIT-1 Forms of business organizations

- Sole proprietorship, Joint Hindu Family Business – meaning, features, merits and demerits.
- Partnership – meaning, types, registration, merits, limitations, types of partners.
- Co – Operative societies – types, merits and limitations.
- Company – Private Ltd, Public Ltd – merits, limitations.

- Starting a business – Basic factors.
- Choice of forms of business organizations.

### UNIT-2 Business services

- Nature and types of Business services – Banking, Insurance, Transportation, Warehousing, communication.
- Banking – types of banks, functions of commercial banks, E – banking.
- Insurance – principles & types of life, fire, marine insurances.
- Postal and Telecom services.
- Warehousing – types and functions.
- Transport – meaning, role, means.

### UNIT -3 Emerging modes of Business

- E – business – Meaning, Scope and benefits. Resource required for successful E –Business implementation. On – line transactions, payment mechanism.
- Security and safety of business transactions.
- Outsourcing – Concept, need and scope.

### UNIT-4 Social Responsibilities of business and business ethics.

- Concept of social responsibility.
- Cases for social responsibility.
- Responsibility towards different interest groups, owners, investors, employees, consumers, government, community, public in general.
- Business ethics – concept and elements.
- Business and environmental protection.

### UNIT-5 Consumer protection

- Importance of consumer protection.
- Rights of consumers
- Consumer responsibilities.
- Ways and means of consumer protection.
- Consumer awareness and legal redressal with special reference to Consumer Protection Act.



- Role of Consumer Organization and NGOS.

### UNIT-6 Principles of Management

- Principles of Management – meaning, nature and significance.
- Fayol’s Principles of Management.
- Taylor’s scientific management – Principles and Techniques.

### UNIT-7 Functions of Management

- Planning – Meaning, Nature, Importance.
- Organizing – Meaning, Nature, Importance.
- Staffing – Meaning, Nature, Importance.
- Directing – Meaning, Nature, Importance.
- Controlling – Meaning, Nature, Importance.
- Co – ordinating – Meaning, Nature, Importance.

### UNIT-8 Entrepreneurship Development

- Concept, Functions and Need.
- Entrepreneurship: Characteristics and Competencies.
- Process of entrepreneurship development.
- Entrepreneurship Values: Attitudes and Motivation- Meaning and concept.

### Some topics for Projects (Based on Std. XII Syllabus)

#### List of Topics for projects

1. An interview of sole trader
2. Partnership firm :- process & procedure
3. Joint Hindu family – An affectionate business
4. Collection of Common seals of different Joint stock companies and the relevant information about common seals
5. Visit to a co-operative society, co-operative credit societies, patpedhis, consumer co-operative stores and prepare a report of such visits.

6. Information about the businesses who are working in the private and public sector.
7. Effects on environment – (List of information of industries)
8. Information about the business groups who are famous in their social accountability (e.g. Tata, Reliance, etc.)
9. An interview of those persons who are aware of consumer welfare and their rights.
10. Information about a training institute, giving training to consumers about Their rights.
11. Prepare a report of any cottage industry doing planning on the basis of co-operation.
12. Information about students co-operative stores.
13. Plan and project report of any function.
14. An interview of a eminent businessman.
15. Detail information about the various services offered by a big business group.
16. Information of any two business groups who have secured I.S.O. 9000.
17. How will you plan against any natural calamity in your area.
18. How will you plan for keeping (maintaining) best highest Quality of the goods produced by group.
19. Information about the institute who gives career guidance.
20. Bad effects of various festivals on the environment.

#### N.B –

Students are free to select any topic other than the topics given above; but that should be related to the topic of the syllabi.



## Secretarial Practice (52)

### Introduction

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This syllabi introduces 80-20 pattern of evaluation. Comprising 80 marks theory and 20 marks practical. Being need of the time, practical approach is introduced. After doing a comparative study of syllabi of different Boards like C.B.S.E, ICSE, regarding their syllabi at + 2 level, this curriculum is prepared which shows common content in commerce at national level. The suggestions and recommendations received from various Boards regarding commerce subjects are considered in this curriculum. It allows students to appreciate that business is an integral component of society and develop an understanding of many social and ethical

issues. Besides, it also informs students of a range of study and work options and bridge the gap between Secondary and Higher secondary education.

### General Objectives

- To develop an understanding of the processes of business and its environment in students.
- To acquaint students with the dynamic nature and inter - dependent aspects of business.
- To help the students regarding the economic and social significance of business activity.
- To acquaint students with the practice of managing the operations and resources of business.
- To enable the students to be aware of socio – economic and ethical values of business.
- To acquire knowledge of new trends in the field of business.
- To enhance the interest of students while doing the practical work like projects.

### Std. XI

#### Specific Objectives

- To acquire knowledge of the basic term 'Secretary'
- To know about Joint Stock Company and machinery monitoring Joint Stock Company, structural organization of Joint Stock Company and company meetings.
- To understand business correspondence, secretarial correspondence with Directors, Registrar, Banks and Insurance company.



**STD: XI****UNIT -1 Secretary**

- Meaning, definition and importance.
- Types of secretaries:
  - a) Personal b) Non – profit Association
  - c) Co – operative Society d) Joint Stock Company e) Government department (Qualifications, qualities and functions)

**UNIT-2 Joint stock company**

- Evolution
- Definition and Features
- Merits and limitations
- Formation of Joint stock Company – Stages – Promotion, Incorporation, Capital raising and obtaining Trading Certificate
- Documents related to the Formation of a Joint stock Company – Memorandum of Association, Articles of Association, Prospectus, Statement in lieu of prospectus (Meaning, purpose and contents of each document).

**UNIT-3 Machinery monitoring Joint stock Company**

- The Central Government's Department of company affairs.
- The Board of Company Law Administration (Company Law Board / National company Law Tribunal )
- Registrar of Companies.
- Advisory Committee.
- Jurisdiction of court (brief outline of the role in monitoring mechanism)

**UNIT-4 Structural Organization of a Joint stock company**

- Shareholders – Acquisition of membership, rights and termination.
- Board of Directors – Qualifications, appointment, Powers, duties.

- Managing Director – Qualifications, appointment, powers, duties and remuneration.
- Auditor – Meaning, functions, rights, appointment, remuneration and removal.
- Company Secretary – Appointment, rights and responsibilities, remuneration.

**UNIT - 5 Company Meetings**

- Provisions for convening and conducting a valid meeting.
- Provisions related to Notice, Agenda, Quorum, Proxy, Voting, Motions, Amendments, Resolutions, Minutes.
- Types of Meetings – Statutory Meeting, Annual General Meeting, Extra – Ordinary General Meeting, Meetings of Board of directors.
- Role of a Company secretary relating to Meetings.

**UNIT - 6 Business Correspondence**

- Basic principles of Business correspondence.
- Importance
- Layout of a Business Letter
- Essentials of a good business letter
- Physical appearance of business letter
- Precaution to be taken while writing business letters

**UNIT-7 Secretarial correspondence****7.1 Correspondence with Directors**

- Notice of Meeting with agenda
- Sending a brief report to directors who were absent for meeting
- Reminding the directors about the provision regarding absenteeism of consecutive meetings
- Requesting a director to be present at a meeting as an expert
- Removal of a director



### 7.2 Correspondence with Registrar of Companies

- Filing Statutory Report
- Filing Annual Report
- Extension of time for holding Annual General Meeting
- Filing special resolution with Registrar of companies
- Alteration in clauses of Memorandum of Association and Articles of Association

### 7.3 Correspondence with Banks

- Opening of an Account
- Stop payment
- Issue of a Letter of Credit

### 7.4 Correspondence with Insurance Companies

- Enquiry about various policies regarding fire & marine Insurance.
- Asking for fire and marine policies.
- Informing insurance company about damage of goods by fire/marine loss
- Settlement of claim

#### Std. XI

#### PROJECT WORK

- 1) Interview of a personal secretary working with Doctor or any Professional.
- 2) Report of a social organization like Lions Club, Rotary Club, Mahila Bachat gat etc.
- 3) Informative report of a non profit association – Hospital, Public Library, Sports club, Cultural Association etc.
- 4) Visit report: Auditor's office.
- 5) Informative report about the office work done by using computer.
- 6) Interview of a promoter, Large scale businessman.
- 7) Documents presentation: Memorandum of

Association, Articles of Association.

- 8) Interview of a Secretary- Company/Other institutes.
- 9) Insurance proposals – Fire insurance, Marine insurance
- 10) Informative report of education loans given by banks.
- 11) Visit to the bank to open an Account
- 12) Prepare proformas – Notice, Agenda, Resolution etc.
- 13) Report on visit to local co-operative organisation
- 14) Report on company visit.

#### Note :

The above list of projects is given only as guidelines. Being creative and innovative, students may select any topic for project related to the syllabus.

#### Std. XII

#### Specific Objectives

- To acquire the knowledge of business finance, sources of business finance.
- To understand the role of secretary in the capital formation.
- To know about the declaration and payment of dividend.
- To acquire the knowledge of correspondence of a company secretary with members, debenture holders and depositors.
- To give the information about financial markets.

#### UNIT 1 Business Finance

- Business Finance – Meaning, role, objectives of financial management.
- Financial planning – Meaning and



importance.

- Capital structure – Meaning and factors.
- Fixed and working capital – Meaning and factors affecting their requirements.

### **UNIT-2 Sources of Business Finance**

- Nature and significance: Financial requirements and sources.
- Methods of raising finance
  - Equity and preference shares
  - Debentures and Bonds
  - Retained profits
  - Public deposits
  - Loan from commercial banks
  - Loan from financial institutions
  - Trade credit
  - Discounting of bills of Exchange
  - Global Depository Receipt, American Depository Receipt

### **UNIT-3 Role of a Secretary in the Capital Formation Part I**

- Meaning of issue of shares at par, premium and discount, at bid price
- Meaning of Initial public offer.
- Meaning of bonus issue
- Meaning of rights issue
- Meaning of Employee stock option scheme
- Meaning of private placement.
- Issue of shares – procedure
- Allotment – Meaning, conditions for valid allotment, procedure
- Transfer and Transmission of shares – Meaning, provisions, procedure, difference.
- Issue of share certificate and share warrant – Meaning, provisions, procedure, difference.

### **UNIT-4 Role of a Secretary in the Capital Formation Part II**

- Issue of debentures – procedure, conversion and redemption of debentures

- Deposits – invitation, acceptance, renewal, repayment, default and remedies
- Depositories and dematerialization of securities – meaning, importance, procedure, secretarial duties in issuing securities in dematerialized form

### **UNIT-5 Declaration and payment of dividend**

- Meaning
- Provisions related to ascertainment of dividend, declaration of dividend and payment of dividend.
- Procedure of payment of dividend.
- Provisions regarding unpaid / unclaimed dividend
- Interim and final dividend – Meaning and difference

### **UNIT-6 Correspondence of company secretary with members, debenture holders and depositors**

- Allotment of shares
- Regret letter
- Lodgement notice
- Approval / Refusal of Transfer of shares
- Issue of bonus shares
- Distribution of dividend – notice
- Allotment of debentures
- Redemption of debentures
- Conversion of debentures into shares
- Payment of interest on debentures
- Letter thanking the investor for deposits
- Payment of interest (Basic information of TDS to be given)
- Renewal of deposits
- Repayment of deposits

### **UNIT -7 Financial markets**

- Concept of Financial market
- Money market – nature, instruments.



- Capital market- nature and constituents – primary and secondary market.
  - Distinction between capital market and money market.
  - Stock Exchange – meaning, functions, BSE, NSEI, Trading procedure.
  - Securities Exchange Board of India (SEBI) objectives, functions.
- 7) Introduction to latest instruments of debts – (Refer Economic Times, Business Today, internet).
  - 8) Informative report of public deposits offer by company.
  - 9) Informative report of DEMAT account.
  - 10) Report about dividend policy of any company.
  - 11) Specimen presentation of letters issued by company

### PROJECT WORK - Std. XII

- 1) Specimen presentation of different kinds of share certificates.
- 2) Specimen presentation of different kinds of debenture certificates.
- 3) Interview report of an underwriter.
- 4) Functional report of SEBI.
- 5) Visit report – Financial institution other than bank.
- 6) Presentation of prospectus and your observations.
- 12) Collection of news clippings about share market.
- 13) Functional report of stock exchange.
- 14) Prepare specimen – Dividend warrant, Interest warrant

#### Note –

The above list of projects is given only as guidelines. Being creative and innovative, students may select any topic for project related to the syllabus.



## Co-operation (53)

### Introduction

Along with formal, traditional, recent education in Commerce and Industry, now it has become necessary to give practical knowledge so as to enable the students to have good understanding of the basic concepts of globalised world and its relationship with the society.

Council of Boards of School Education in India (COBSE) has taken the responsibility of bringing out 'Common content in commerce' at + 2 stages of secondary level. It is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. Information Technology is becoming a part of educational operations. Computerised systems are fast replacing other systems. This syllabus will prepare students to analyse, manage, evaluate and respond to change which affects seriously. It provides a way of looking at and interacting with the business environment.

This syllabi introduces 80-20 pattern of evaluation. Comprising 80 marks Theory and 20 marks practical. Being need of the time, practical approach is introduced. After doing a comparative study of syllabi of different Boards like C.B.S.E, ICSE, regarding their syllabi at + 2 level, this curriculum is prepared which shows common content in commerce at the national level. The suggestions and recommendations received from various Boards regarding commerce subjects are considered in this curriculum. It allows students to appreciate that business is an integral component of society and develop an understanding of many social

and ethical issues. Besides, it also informs students of a range of study and work options and bridge the gap between Secondary and Higher secondary education.

### General Objectives

- To develop in students an understanding of the processes of business and its environment.
- To acquaint students with the dynamic nature and inter - dependent aspects of business.
- To help the students understand the economic and social significance of business activity.
- To acquaint with students the practice of managing the operations and resources of business.
- To enable the students to be aware of socio - economic and ethical dimensions of business.
- To acquire the knowledge of new trends in the field of business.
- To enhance the interest of students while doing the practical work like projects.

### Std. XI

#### Specific Objectives

- To acquire the knowledge of basic terms, definitions and concepts of co-operation.
- To know the need and importance of co-operation.
- To understand the principles of co - operation and the history of co-operative movement.



- To get knowledge of Credit co-operative society, Farming co-operative society, Processing co-operative society, Marketing co-operative society, Industrial co-operative society, Multipurpose co-operative society, Consumer co-operative society, Housing co-operative society.

### UNIT-1 Co - operation

- 1.1 Meaning
- 1.2 Features
- 1.3 Need
- 1.4 Importance

### UNIT-2 Principles of co-operation

- 2.1 History of co-operative principles
- 2.2 Basic principles
- 2.3 General principles

### UNIT-3 History of co-operative movement

- 3.1 World
- 3.2 India
- 3.3 Maharashtra

### UNIT-4 Forms of Co-operative societies

- 4.1 Credit co-operative society
- 4.2 Farming co-operative society
- 4.3 Processing co-operative society
- 4.4 Marketing co-operative society
- 4.5 Industrial co-operative society
- 4.6 Multipurpose co-operative society
- 4.7 Consumers co-operative society
- 4.8 Housing co-operative society

### UNIT-5 Co-operative movement in India

- 5.1 Achievements of co-operative movement
- 5.2 Merits of co-operative movement
- 5.3 Demerits of co-operative movement
- 5.4 Concepts of Liberalisation, Privatisation and globalisation

### Project work - Std. XI

- 1) Visit any co-operative society in your locality / area and prepare Report. Prepare report on interview with the promoter of any co-operative Society of your locality/area.
- 2) Prepare report on progress of Credit co-operative society in your Locality / area.
- 3) Prepare report of Processing Co-operative society from your Locality / area.
- 4) Visit a Multipurpose Co-operative society and take interview of office bearer and prepare report.
- 5) Visit any Co-operative society from your local area, collect information of the working of Co-operative society and prepare report.
- 6) Collect information of Consumers Co-operative society and prepare report.
- 7) Report on the working of Students co-operative society.
- 8) Prepare a report of any Industrial co-operative society in your locality.

#### Note –

Students are free to select any topic other than the topics given above but it must be related to the syllabus.

### Std. XII

#### Specific Objectives

- To acquire the knowledge of formation of co-operative society-stages, organization, office bearers.
- To understand the role and functions of Commissioner and Registrar of co-operative societies.



- To study the legal provisions of Maharashtra State Co-operative societies Act 1960 with up to-date amendments.
- To acquire the detailed knowledge about-
  - Maintenance of Accounts and Audit of co-operative society.
  - Study of District Central Co-operative bank.
  - State Co-operative bank, Urban Co-operative bank.
  - Co-operative education and training
- To know about the impact of global economy on co-operative movement.

#### **UNIT – 1 Formation of co-operative society**

Procedure as per Maharashtra Co-operative Societies Act- 1960

- 1.1 Stages in formation of co-operative society
- 1.2 Promotion stage
- 1.3 Registration stage
- 1.4 Promoter – Meaning, Functions, responsibilities

#### **UNIT – 2 Organization of co-operative society**

- 2.1 Member-Meaning, Types, Rights, Responsibilities
- 2.2 Managing committee - Functions, Powers, Responsibilities.
- 2.3 Office Bearers-Functions, Powers, Responsibilities
  - a. Chairman - Functions, Powers, Responsibilities
  - b. Vice – Chairman - Functions, Powers, Responsibilities
  - c. Secretary- Meaning and Definitions, Functions, Qualities of an ideal secretary

- 2.4 Correspondence of Secretary of a co-operative society with the Registrar, Member and Managing Committee

#### **UNIT – 3 Role of Commissioner and Registrar of co-operative societies.**

- 3.1 Registrar – Role, Functions, Powers, Responsibilities.
- 3.2 Commissioner.

#### **UNIT – 4 Study of Maharashtra State Co-operative Societies Act-1960 with up to date amendments in connection with.**

- 4.1 Capital raising
- 4.2 Meetings
- 4.3 Maintenance of Accounts and Audit

#### **UNIT – 5 A brief study of following Co-operative organizations in the light of Co-operative movement in Maharashtra**

- 5.1 District central co-operative banks.
- 5.2 Maharashtra State co-operative bank.
- 5.3 Urban co-operative banks.

#### **UNIT – 6 Co-operative Education and Training**

- 6.1 Concept of Co – operative Education and Training.
- 6.2 Objectives and Need of Co – operative Education and Training.
- 6.3 Organisational Structure of Co-operative Education and Training Centres in Maharashtra.
- 6.4 Vaikunthlal Mehta National Institute of Co – operative Management and Research, Pune in Co – operative Education and Training.



## UNIT – 7 Impact of Global Economy on Co-operative Movement

7.1 Impact of Global Economy on Co-operative movement –Liberalisation, Privatisation and Globalisation.

7.2 In changing Economic environment expectations from co – operative movement.

### Project work - Std. XII

- 1) A Report on interview with promoter of co-operative society.
- 2) A Report on information of co-operative society.
- 3) A Report on interview with managing director of co-operative society.
- 4) A Report on interview with Secretary of co-operative society.
- 5) Specimen presentation of letters issued by co-operative society. (Do not use specimen letters given in the text book)
- 6) A Report on interview with Registrar of co-operative society.
- 7) Collect the documents required for registration of co-operative society and prepare a report on it.

- 8) Visit a co-operative bank and prepare visit report.
- 9) A report on observation of Annul General meeting of any co-operative society.
- 10) A Report on interview with auditor of co-operative society.
- 11) A Report on ‘A’ class co-operative society.
- 12) A Report on visit to District Central Co-operative bank in your district.
- 13) A Report on Information about Urban Co-operative banks in your district.
- 14) A Report on banking services provided to customers by urban co-operative bank.
- 15) Informative report of co-operative training centres.
- 16) Informative report of Vaikunthlal Mehta National Institute of Co-operative Management and Research.
- 17) A report on Co-operative education with the help of distance learning / Correspondence courses.

### Note

Students are free to select any topic other than the topics given above but it must be related to the syllabus.



## Physics (54)

### Introduction

According to NCF 2005, the curriculum of the subject Physics is upgraded for higher secondary stage. This curriculum is comparable to the international standards which are useful for the students in Maharashtra State for different types of competitive examinations conducted in India. All the units of the subject from NCERT curriculum are divided into two years conveniently in Maharashtra State. Continuity in the curriculum is maintained in Std. XI & XII, which is not in NCERT curriculum. All the students appear for the competitive examinations only after +2 stage throughout India.

This syllabus has been designed in accordance with the guidelines shown in the final version of common core syllabii of COBSE, Delhi. Accordingly few additional sub units have been added.

### Objectives

1. Emphasis on basic conceptual understanding of the content.
2. Emphasis on use of SI units, symbols, nomenclature of physical quantities and formulations as per international standards.
3. Providing logical sequencing of units of the subject matter and proper placement of concepts with their linkage for better learning.
4. Reducing the curriculum load by eliminating overlapping of concepts/content within the discipline and other disciplines.
5. Promotion of process-skills, problem-solving abilities and applications of Physics concepts.
6. Strengthen the concepts developed at the secondary stage to provide firm foundation for further learning in the subject.
7. Expose the learners to different processes used in Physics-related industrial and technological applications.
8. Develop process-skills and experimental, observational, manipulative, decision making and investigatory skills in the learners.
9. Promote problem solving abilities and creative thinking in learners.
10. Develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines.

### Std. XI

#### 1. Measurements

Introduction, Need for measurement, Units for measurement, System of Units, S.I. Units, Fundamental and derived units, Dimensional analysis, Order of magnitude and significant figures, Accuracy and errors in measurement.

#### 2. Scalars and Vectors

Addition and subtraction of vectors, Product of vectors.

#### 3. Projectile motion

Uniformly accelerated motion along straight line, Non uniform motion, Position



time graph and velocity-time graph, Equation of a projectile path, Time of flight, Horizontal range, Maximum height of a projectile, Relative velocity.

#### 4. Force

Types of forces, General idea of gravitation, electromagnetic and nuclear forces, Law of conservation of momentum, Work done by a variable force. Work-energy theorem, Elastic and inelastic collisions in one and two dimensions, Inertial and non-inertial frames, Moment of force, Couple and properties of couple, Centre of mass, Centre of gravity, Conditions of equilibrium of a rigid body.

#### 5. Friction in solids and liquids

Origin and nature of frictional forces, Laws of static friction, Laws of kinetic friction, Pressure due to fluid column, Pascal's Law and its applications, Effect of gravity on fluid pressure, Viscosity, Streamline flow, Turbulent flow, Viscous force, Newton's formula, Stokes' law, Equation for terminal velocity, Reynold's number, Bernoulli's principle and its applications.

#### 6. Sound Waves

Waves and oscillations, Progressive waves, Characteristics of transverse waves, Characteristics of longitudinal waves, Sound as longitudinal wave motion, Relation between  $v$ ,  $f$  and,  $\lambda$  Newton's formula for velocity of sound, Laplace's correction.

#### 7. Thermal properties of matter

Temperature and heat, Measurement of temperature, Ideal-gas equation and absolute temperature, Thermal expansion, Specific heat capacity, Calorimetry, Change of state, Latent heat, Heat transfer.

#### 8. Refraction of Light

Refraction of monochromatic light, Snell's law, Total internal reflection, Critical angle, Optical fibre, Dispersion of light, Prism formula, Angular dispersion and dispersive power, Rainbow, Scattering of light, Blue colour of sky, Colour of sun at sunrise and sunset. Elementary idea of Raman effect.

#### 9. Ray optics

Reflection of light by spherical mirrors, Refraction at single curved surface, Lens maker's equation, Combination of thin lenses in contact, Concept of conjugate foci, Correction of eye defects, Magnifying power of simple microscope, Magnifying power of compound microscope, Magnifying power of telescope, Reflecting telescope - schematic diagram with explanation.

#### 10. Electrostatics

Frictional electricity, Charges and their conservation, Coulomb's law and dielectric constant, Forces between multiple electric charges, Superposition principle of forces, Continuous distribution of charges, Concept of charge density, Electric field intensity, Potential energy, Electric potential due to point charge, Relation between electric field intensity and potential, Potential difference, Volt and electron volt, Electric dipole and dipole moment, Electric lines of force. Equipotential surfaces, P.E. of single charge and system of charges.

#### 11. Current electricity

Ohm's law, Resistance, Specific resistance, Temperature dependence of resistance, Colour code of carbon resistor, Series and parallel combination of resistors, E.M.F.



and internal resistance of cell, Work done by electric current, Power in electric circuit, Cells in series and in parallel, Elementary idea of secondary cells.

## 12. Magnetic effect of electric current

Oersted's experiment, Biot Savart's law, Right hand rule, Magnetic induction at the centre of circular coil carrying current, Magnetic induction at a point along the axis of a coil carrying current, Fleming's left hand rule, Force between two infinitely long current carrying parallel conductors, Definition of Ampere, Force acting on a conductor carrying current in magnetic field, Torque on a current loop in magnetic field.

## 13. Magnetism

Origin of magnetism due to moving charges, Equivalence between magnetic dipole and circular coil carrying current, Definition of magnetic dipole moment and its unit, Torque acting on a magnet in uniform magnetic induction, Bar magnet as an equivalent solenoid, Magnetic field lines, Magnetic induction due to bar magnet at a point along the axis and at a point along equator, Earth's magnetic field and magnetic elements, Electromagnets and factors affecting their strength.

## 14. Electromagnetic waves

Electromagnetic waves and their characteristics, Transverse nature of electromagnetic waves, Electromagnetic spectrum, Space communication, Propagation of electromagnetic waves in atmosphere.

### List of Practicals - Std. XI

1. Use of Vernier Callipers.
2. Use of Screw gauge.

3. To determine radius of curvature of a given spherical surface by a spherometer.
4. To find the weight of a given body using parallelogram law of vectors.
5. To study the relationship between force of limiting friction and normal reaction and to find co-efficient of friction between a block and a horizontal surface.
6. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
7. To find the value of 'v' for different values of 'u' in case of a 'concave mirror' and to find the focal length.
8. To find the focal length of a convex lens by plotting graphs between 'u' and 'v' or between '1/u' and '1/v'.
9. To find the focal length of a convex mirror, using a convex lens.
10. To find the focal length of a concave lens, using a convex lens.
11. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
12. To determine refractive index of a glass using a travelling microscope.
13. To find refractive index of a liquid by using (i) concave mirror, (ii) convex lens and plane mirror.
14. To determine specific heat capacity of a given (i) liquid (ii) solid, by method of mixtures.

### **List of Activities - Std. XI**

1. To make a paper scale of given least count, e.g. 0.2 cm, 0.5 cm.
2. To determine mass of a given body using a meter scale by principle of moments.
3. To plot a graph for a given set of data,



with proper choice of scales and error bars.

4. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
5. To study the variation in range of a jet of water with angle of projection.
6. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
7. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
8. To study the nature and size of image formed by (i) convex lens (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
9. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.
10. To note the change in level of liquid in a container on heating and interpret the observations.

### **Std. XII**

#### **1. Circular motion**

Angular displacement, Angular velocity and angular acceleration, Relation between linear velocity and angular velocity, Uniform circular motion, Radial acceleration, Centripetal and centrifugal forces, Banking of roads, Vertical circular motion due to earth's gravitation, Equation for velocity and energy at different positions of vertical circular motion. Kinematical equations for circular motion in analogy with linear motion.

#### **2. Gravitation**

Newton's law of gravitation, Projection of satellite, Periodic time, Statement of Kepler's laws of motion, Binding energy and escape velocity of a satellite, Weightlessness condition in orbit, Variation of 'g' due to altitude, latitude, depth and motion, Communication satellite and its uses.

#### **3. Rotational motion**

Definition of M.I., K.E. of rotating body, Rolling motion, Physical significance of M.I., Radius of gyration, Torque, Principle of parallel and perpendicular axes, M.I. of some regular shaped bodies about specific axes, Angular momentum and its conservation.

#### **4. Oscillations**

Explanation of periodic motion, S.H.M., Differential equation of linear S.H.M. Projection of U.C.M. on any diameter, Phase of S.H.M., K.E. and P.E. in S.H.M., Composition of two S.H.M.'s having same period and along same line, Simple pendulum, Damped S.H.M.

#### **5. Elasticity**

General explanation of elastic property, Plasticity, Deformation, Definition of stress and strain, Hooke's law, Poisson's ratio, Elastic energy, Elastic constants and their relation, Determination of 'Y', Behaviour of metal wire under increasing load, Applications of elastic behaviour of materials.

#### **6. Surface tension**

Surface tension on the basis of molecular theory, Surface energy, Surface tension, Angle of contact, Capillarity and capillary action, Effect of impurity and temperature on surface tension.



**7. Wave motion**

Simple harmonic progressive waves, Reflection of transverse and longitudinal waves, Change of phase, Superposition of waves, Formation of beats, Doppler effect in sound.

**8. Stationary waves**

Study of vibrations in a finite medium, Formation of stationary waves on string, Study of vibrations of air columns, Free and Forced vibrations, Resonance.

**9. Kinetic theory of gases and Radiation**

Concept of an ideal gas, Assumptions of kinetic theory, Mean free path, Derivation for pressure of a gas, Degrees of freedom, Derivation of Boyle's law, Thermodynamics- Thermal equilibrium and definition of temperature, 1<sup>st</sup> law of thermodynamics, 2<sup>nd</sup> law of thermodynamics, Heat engines and refrigerators, Qualitative idea of black body radiation, Wein's displacement law, Green house effect, Stefan's law, Maxwell distribution, Law of equipartition of energy and application to Specific heat capacities of gases.

**10. Wave theory of light**

Wave theory of light, Huygens' Principle, Construction of plane and spherical wave front, Wave front and wave normal, Reflection at plane surface, Refraction at plane surface, Polarisation, Polaroids, Plane polarised light, Brewster's law, Doppler effect in light.

**11. Interference and diffraction**

Interference of light, Conditions for producing steady interference pattern, Young's experiment, Analytical treatment of interference bands, Measurement of

wavelength by biprism experiment, Diffraction due to single slit, Rayleigh's criterion, Resolving power of a microscope and telescope, Difference between interference and diffraction.

**12. Electrostatics**

Gauss' theorem proof and applications, Mechanical force on unit area of a charged conductor, Energy density of a medium, Dielectrics and electric polarisation, Concept of condenser, Capacity of parallel plate condenser, Effect of dielectric on capacity, Energy of charged condenser, Condensers in series and parallel, van-de-Graaff generator.

**13. Current electricity**

Kirchhoff's law, Wheatstone's bridge, Meter bridge, Potentiometer.

**14. Magnetic effects of electric current**

Ampere's law and its applications, Moving coil galvanometer, Ammeter, Voltmeter, Sensitivity of moving coil galvanometer, Cyclotron.

**15. Magnetism**

Circular current loop as a magnetic dipole, Magnetic dipole moment of revolving electron, Magnetisation and magnetic intensity, Diamagnetism, Paramagnetism, Ferromagnetism on the basis of domain theory, Curie temperature.

**16. Electromagnetic inductions**

Laws of electromagnetic induction, proof of,  $e = - \frac{d\Phi}{dt}$

Eddy currents, Self induction and mutual induction, Need for displacement current, Transformer, Coil rotating in uniform magnetic induction, Alternating currents, Reactance and impedance, LC oscillations



(qualitative treatment only) Power in a.c circuit with resistance, inductance and capacitance, Resonant circuit, Wattless current, AC generator.

### 17 Electrons and photons

Photoelectric effect, Hertz and Lenard's observations, Einstein's equation, Particle nature of light.

### 18 Atoms, Molecules and Nuclei

Alpha particle scattering experiment, Rutherford's model of atom. Bohr's model, Hydrogen spectrum, Composition and size of nucleus, Radioactivity, Decay law, mass-energy relation, mass defect, B.E. per nucleon and its variation with mass number, Nuclear fission and fusion, de Broglie hypothesis, Matter waves – wave nature of particles, Wavelength of an electron, Davisson and Germer experiment, Continuous and characteristics X-rays.

### 19 Semiconductors

Energy bands in solids, Intrinsic and extrinsic semiconductors, P-type and N-type semiconductor, P-N junction diode, I-V characteristics in forward and reverse bias, Rectifiers, Zener diode as a voltage regulator, Photodiode, Solar cell, I-V characteristics of LED, Transistor action and its characteristics, Transistor as an amplifier (CE mode), Transistor as a switch, Oscillators and Logic gates (OR, AND, NOT, NAND, NOR)

### 20 Communication systems

Elements of communication system, bandwidth of signals, bandwidth of transmission medium, Need for modulation, Production and detection of an amplitude modulated wave, space

communication, Propagation of electromagnetic waves in atmosphere.

### List of Practicals - Std. XII

1. To determine Young's modulus of elasticity of the material of a given wire.
2. To find the force constant and effective mass of helical spring by plotting  $T^2$ - $m$  graph using method of oscillations.
3. To determine the surface tension of water by capillary rise method.
4. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.
5. To study the relation between frequency and length of a given wire under constant tension using sonometer.
6. To study the relation between the length of a given wire and tension for constant frequency using sonometer.
7. To find the speed of sound in air at room temperature using a resonance tube.
8. To find resistance of given wire using metre bridge and hence determine the specific resistance of its material.
9. To verify the laws of combination (series/parallel) of resistances using a metre bridge.
10. To compare the emf of two given cells using potentiometer.
11. To determine the internal resistance of given cell using potentiometer.
12. To determine resistance of galvanometer using metre bridge.
13. To draw the I-V characteristic curves of a p-n junction diode in forward bias and reverse bias.



14. To study the characteristics of a common-emitter npn or pnp transistor and to find out the values of current and voltage gains.
15. To draw the characteristic curve of a zener diode and to determine its reverse break down voltage.

### **List of Activities - Std. XII**

1. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.
2. To study the effect of detergent on surface tension by observing capillary rise.
3. To study the factors affecting the rate of loss of heat of a liquid.
4. To study the effect of load on depression of a suitably clamped meter scale loaded (i) at its end (ii) in the middle.
5. To measure the resistance and impedance of an inductor with or without iron core.
6. To study the variation in potential drop with length of a wire for a steady current.
7. To draw the diagram of a given open circuit comprising at least a battery, resistor/ rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.
8. To study effect of intensity of light (by varying distance of the source) on an L.D.R.
9. To identify a diode, an LED, a transistor, and IC, a resistor and a capacitor from mixed collection of such items.
10. Use of multimeter to (i) identify base of transistor (ii) distinguish between npn and pnp type transistors, (iii) see the unidirectional flow of current in case of a diode and an LED (iv) check whether a given electronic component (e.g. diode, transistor or IC) is in working order.
11. To observe polarization of light using two polaroids.
12. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.



## Chemistry (55)

### Introduction

According to NCF 2005, the new and updated curriculum is introduced at +2 stage. There is a need to provide the sufficient conceptual background of chemistry which will help the students to appear for different common entrance test at the state level and the national level. This new syllabus will make them competent to meet the challenges of academic and professional courses like medicine, engineering, technology, etc, after the +2 stage. The syllabus is comparable to the international level.

The syllabus contains areas like physical, organic, inorganic, industrial, analytical and polymer chemistry. The upgraded syllabus has taken care of new formulations and nomenclature of elements, compounds and IUPAC units of physical quantities. New nomenclature, symbols and formulations, fundamental concepts, modern techniques are given importance.

#### Objectives :

The broad objectives of teaching Chemistry at Higher Secondary stage are to help the learners :

- 1) To promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.
- 2) To make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.

- 3) To expose the students to various emerging new areas of chemistry and apprise them with their relevance in their future studies and their applications in various spheres of chemical sciences and technology.
- 4) To equip students to face various changes related to health, nutrition, environment, population, weather, industries and agriculture.
- 5) To develop problem solving skills in students.
- 6) To expose the students to different processes used in industries and their technological applications.
- 7) To apprise students with interface of chemistry with other disciplines of science such as physics, biology, geology, engineering, etc.

### Std. XI (Theory)

#### Unit 1: Some Basic Concepts of Chemistry

General Introduction: Importance and scope of chemistry. Historical approach to particulate nature of matter, laws of chemical combination, Dalton's atomic theory : concept of elements, atoms and molecules. Atomic and molecular masses mole concept and molar mass : Avogadro's law and Avogadro number, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.



## Unit 2 :States of matter : Gases and liquids

Three states of matter. Intermolecular interactions, type of bonding. Role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law. Ideal behaviour, empirical derivation of gas equation. Ideal gas equation. Deviation from ideal behaviour, liquefaction of gases. Critical temperature. Kinetic energy and molecular speeds (elementary idea) Liquid State – Vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations).

## Unit 3 : Structure of atom

Discovery of electron, proton and neutron; atomic number, isotopes and isobars. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg's uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals – Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

## Unit 4 : Periodic table

Significance of classification, brief history of the development of periodic table, modern periodic law and present form of periodic table, periodic trends in properties of elements atomic radii, ionic radii. Inert gas radii nomenclature of elements with atomic number greater than 100. Enthalpy: Explanation and definition of term. Ionization enthalpy, electron gain enthalpy,

electronegativity, valence.

## Unit 5: Redox reactions

Concept of oxidation and reduction, redox reactions, oxidation number, Balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number.

## Unit 6: Chemical equilibrium

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium, Le Chatelier's principle.

Ionic equilibrium: Ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of polybasic acids, acid strength, concept of pH. Hydrolysis of salts (elementary idea). Buffer solutions, solubility product, common ion effect (with illustrative examples.) Handerson equation.

## Unit 7 : Surface chemistry

Adsorption – physisorption and chemisorption; factors affecting adsorption of gases on solids; catalysis : homogenous and heterogeneous, activity and selectivity: enzyme catalysis; colloidal state : distinction between true solutions, colloids and suspensions; Lyophilic, Lyophobic, multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation; emulsion – types of emulsions. Elementary idea of nanomaterials.

## Unit 8 : Nature of chemical bond

Valence electrons, ionic bond, Born Haber cycle : covalent bond parameters. Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence



bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), hydrogen bond.

### **Unit 9 : Hydrogen**

Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen; hydrides-ionic, covalent and interstitial; physical and chemical properties of water, heavy water. Hydrogen peroxide- preparation, properties and structure; hydrogen as a fuel. Uses of hydrogen peroxide.

### **Unit 10: s-Block elements (Alkali and alkaline earth metals)**

#### **Group 1 and Group 2 elements :**

General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens; uses. Preparation and properties of some important compounds: Sodium carbonate, sodium hydroxide and sodium hydrogen carbonate, biological importance of sodium and potassium. Calcium oxide and calcium carbonate and industrial uses of lime and limestone, biological importance of Magnesium and Calcium.

### **Unit 11 : p-Block elements**

#### **Group Introduction to p-Block elements**

#### **Group 13 elements :**

General introduction, electronic

configuration, occurrence. Variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group. Boron-physical and chemical properties, some important compounds: borax, boric acids, boron hydrides. Aluminium; uses, reactions with acids and alkalies.

#### **Group 14 elements :**

General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behavior of first element. Carbon – catenation, allotropic forms, physical and chemical properties; uses of some important compounds; oxides. Important compounds of silicon and their uses: silicon tetrachloride, silicones, silicates and zeolites and structure of silicates.

### **Unit 12: Basic principles and techniques in organic chemistry**

General introduction, methods of qualitative and quantitative analysis, Classification and IUPAC nomenclature of organic compounds. Melting point and boiling point. Electronic displacements in a covalent bond; inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond; free radicals, carbocations, carbanions; electrophiles and nucleophiles, types of organic reactions.

### **Unit 13 : Alkanes**

Classification of hydrocarbons – Nomenclature, isomerism, conformations (ethane only), physical properties, chemical reactions including free radical mechanism



of halogenation, combustion and pyrolysis.

#### Unit 14 : Alkenes

Nomenclature, structure of double bond (ethane), geometrical isomerism, physical properties, methods of preparation. Chemical reactions; addition of hydrogen, halogen, water, hydrogen halides (Markovnikoff's addition and peroxide effect) ozonolysis, oxidation, mechanism of electrophilic addition.

#### Unit 15: Alkynes

Nomenclature, structure of triple bond (ethylene), physical properties. Methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of – hydrogen, halogens, hydrogen halides, water.

#### Unit 16 : Aromatic compounds

Introduction, IUPAC nomenclature; benzene; resonance aromaticity; chemical properties; mechanism of electrophilic substitution. – nitration, sulphonation, halogenation, Friedel Craft alkylation and acylation; Carcinogenicity and toxicity.

#### UNIT-17: Environmental chemistry

Environmental pollution- air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, green house effect and global warming. Pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategy for control of environmental pollution.

### Practical Syllabus - Std. XI

#### A. Basic laboratory techniques

1. Cutting glass tube and glass rod

2. Bending glass tube
3. Drawing out a glass jet
4. Study of burner
5. Operating pinch cork

#### B. Characterization and purification of chemical substances

1. Determination of melting point of an organic compound. (p-toludine, naphthalene, oxalic acid,  $\beta$ -naphthol, resorcinol, benzoic acid.)
2. Determination of boiling point of an organic compound. (acetone, methyl acetate, acetic acid, xylene (o,m,p), water)
3. Crystallization of impure sample of any one of the following compounds. Alum, copper sulphate, benzoic acid.

#### C. Surface chemistry

- (a) Preparation of one lyophilic and one lyophobic sol: Lyophilic sol-starch and gum.  
Lyophobic sol–aluminium hydroxide, ferric hydroxide, arseneous sulphide.
- (b) Study of the role of emulsifying agents in stabilizing the emulsion of oil.

#### D. Chemical equilibrium

Any one of the following experiments:

- (a) Study the shift in equilibrium between ferric ions and thiocyanate ions by changing the concentration of either ion.
- (b) Study the shift in equilibrium between  $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$  and chloride ions by changing the concentration of either of the ions.

#### E. Experiments related to pH change

- (a) Any one of the following experiments:
  - Determination of pH of some solutions obtained from fruit juices, varied concentrations of acids, bases and salts using pH paper or universal indicator.
  - Comparing the pH solutions of strong and



weak acid of same concentration.

- Study the pH change in the titration of a strong base using universal indicator.
- (b) Study of pH change by common ion effect in case of weak acids and bases.

#### F. Quantitative estimation

- Using a chemical balance.
- Preparation of standard solution of oxalic acid.
- Determination of strength of a given solution of sodium hydroxide by titrating it against standard solution of oxalic acid.
- Preparation of standard solution of sodium carbonate.
- Determination of strength of a given solution of hydrochloric acid by titrating it against standard sodium carbonate solution.

#### G. Qualitative analysis

Determination of one cation and one anion in a given salt:

Cations –  $\text{Pb}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Al}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{NH}_4^+$

Anions –  $\text{CO}_3^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{SO}_4^{2-}$ ,  $\text{NO}_2^-$ ,  $\text{NO}_3^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{PO}_4^{3-}$ ,  $\text{C}_2\text{O}_4^{2-}$ ,  $\text{CH}_3\text{COO}^-$

(Note: Insoluble salts excluded)

- #### H. Detection of nitrogen, sulphur, chlorine, bromine and iodine in an organic compound.

#### PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects

- 1 Checking the bacterial contamination in drinking water by testing sulphide ion.
- 2 Study of the methods of purification of water.
- 3 Testing the hardness, presence of iron,

fluoride, chloride etc. depending upon the regional variation in drinking water and the study of causes of presence of these ions above permissible limit (if any).

- 4 Investigation of the foaming capacity of different washing soaps and the effect of addition of sodium carbonate on them.
- 5 Study of the acidity of different samples of the tea leaves.
- 6 Determination of the rate of evaporation of different liquids.
- 7 Study of the effect of acids and bases on the tensile strength of fibers.
- 8 Analysis of fruit and vegetable juices for their acidity.

#### Note:

Any other investigatory project can be chosen with the approval of the teacher.

### Std. XII (Theory)

#### Unit 1: Solid State

Classification of solids based on different forces; molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties, **Band theory of metals, conductors and semiconductors and insulators and n and p type semiconductors.**

#### Unit 2 : Solutions and colligative properties

Types of solutions, expression of concentration of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties –relative lowering



of vapor pressure, **Raoult's law** elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass. **Van't Hoff factor and calculations involving it.**

### **Unit 3 :Chemical thermodynamics and energetic**

Concepts of system, types of systems, surroundings. Work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics – internal energy and enthalpy, Hess' law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation. Phase transition, ionization and solution **and dilution** Introduction of entropy as a state function, free energy change for spontaneous and non spontaneous processes, and equilibrium constant. **Second and third law of thermodynamics**

### **Unit 4: Electrochemistry**

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and laws of electrolysis (elementary idea), dry cell –electrolytic and galvanic cells; lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, fuel cells; corrosion. **Relation between Gibb's energy change and emf of a cell.**

### **Unit 5: Chemical kinetics**

Rate of reaction (average and instantaneous), factors affecting rate of

reaction; concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment). **Activation energy, Arrhenius equation.**

### **Unit 6 :General principles and processes of isolation of elements**

Principles and methods of extraction – concentration, oxidation, reduction electrolytic method and refining; occurrence and principle of extraction of aluminium, copper, zinc and iron

### **Unit 7: p-Block elements**

#### **Group 15 elements:**

General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen – preparation, properties and uses; compounds of nitrogen; preparation and properties of ammonia and nitric acid, oxides of nitrogen (structure only); Phosphorous-allotropic forms; compounds of phosphorous; preparation and properties of phosphine, halides ( $\text{PCl}_3, \text{PCl}_5$ ) and oxoacids (elementary idea only).

#### **Group 16 elements:**

General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; dioxygen; preparation, properties and uses; **Classification of oxides**, simple oxides; Ozone.

Sulphur – allotropic forms; compounds of sulphur; preparation, properties and uses of sulphur dioxide; sulphuric acid; industrial process of manufacture, properties and



uses, oxoacids of sulphur (structures only).

#### **Group 17 elements:**

General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens; preparation, properties and uses of chlorine and hydrochloric acid, interhalogen compounds, oxoacids of halogens (structure only).

#### **Group 18 elements:**

General introduction, electronic configuration. Occurrence, trends in physical and chemical properties, uses.

### **Unit 8 : d and f Block Elements**

#### **d-Block Elements -**

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals – metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation preparation and properties of  $K_2Cr_2O_7$  and  $KMnO_4$ .

#### **f-Block elements-**

**Lanthanoids** – Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction **and its consequences**. **Actinoids** – Electronic configuration, oxidation states.

#### **Comparison with lanthanoids.**

### **Unit 9: Coordination compounds**

Coordination compounds – Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, bonding; **Werner's theory**,

**VBT, CFT**. isomerism, (**structural and stereo**) importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems).

### **Unit 10 : Halogen derivatives of alkanes (and arenes)**

#### **Haloalkanes :**

Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions.

#### **Stability of carbocations, R-S and d-l configuration**

#### **Haloarenes :**

Nature of C-X bond, substitution reactions (directive influence of halogen for monosubstituted compounds only) **stability of carbocations, R-S and d-l configurations**. Uses and environmental effects of – dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

### **Unit 11 : Alcohols, phenols and ethers**

#### **Alcohols :**

Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration, uses of methanol and ethanol.

#### **Phenols:**

Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.

#### **Ethers :**

Nomenclature, methods of preparation, physical and chemical properties, uses.

### **Unit 12 : Aldehydes, ketones and**



**carboxylic acids****Aldehydes and ketones :**

Nomenclature, nature of carbonyl group, methods of preparation. Physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses.

**Carboxylic acids :**

Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

**Unit 13: Organic compounds containing nitrogen**

Nitro compounds-General methods of preparation and chemical reactions

**Amines :**

Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

**Cyanides and isocyanides:**

Will be mentioned at relevant places in context.

**Diazonium salts:**

Preparation, chemical reactions and importance in synthetic organic chemistry.

**Unit 14: Biomolecules****Carbohydrates:**

Classification (aldoses and ketoses), monosaccharides **d-l configuration** (glucose and fructose), oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen), importance.

**Proteins:**

Elementary idea of  $\alpha$ -amino acids, peptide, linkage, polypeptides, proteins; structure of amines-primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of

proteins; enzymes.

Lipids and hormones (elementary idea) excluding structure, their classification and functions.

**Vitamins:** Classification and functions.

**Nucleic acids:** DNA and RNA

**Unit 15: Polymers**

Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers; natural and synthetic like polythene, nylon, polyesters, bakelite, and rubber. **Biodegradable and non biodegradable polymers.**

**Unit 16: Chemistry in everyday life :**

- Chemicals in medicines :** analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines
- Chemicals in food :** Preservatives, artificial sweetening agents.
- Cleansing agents :** Soaps and detergents, cleansing action.

**Practical Syllabus - Std. XII****A. Chemical Kinetics**

(Any one of the following) :

- Effect of concentration and temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid.
- Study of reaction rate of any one of the following:
  - Reaction of iodide ion with hydrogen peroxide at room temperature using different concentration of iodide ions.
  - Reaction between potassium iodate,  $\text{KIO}_3$  and sodium sulphite ( $\text{Na}_2\text{SO}_3$ )



using starch solution as indicator (clock reaction).

(c) Acid hydrolysis of ethyl acetate.

### B. Thermochemistry

Any one of the following experiments:

- i] Enthalpy of dissolution of copper sulphate or potassium nitrate.
- ii] Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH).
- iii] Determination of enthalpy change during interaction (hydrogen bond formation) between acetone and chloroform.
- iv] Heat of displacement of Cu from  $\text{CuSO}_4$  by Zn.

### C. Electrochemistry

Variation of cell potential in  $\text{Zn}|\text{Zn}^{2+}||\text{Cu}^{2+}|\text{Cu}$  with change in concentration of electrolytes ( $\text{CuSO}_4$  or  $\text{ZnSO}_4$ ) at room temperature (demonstration).

### D. Chromatography (demonstration)

- (i) Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of  $R_f$  values.
- (ii) Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in  $R_f$  values to be provided).

### E. Preparation of Inorganic Compounds

- (i) Preparation of double salt of ferrous ammonium sulphate or potash alum.
- (ii) Preparation of potassium ferric oxalate.

### F. Preparation of Organic Compounds

- (i) p-Nitroacetanilide
- (ii) Aniline yellow or 2-Naphthol aniline dye.
- (iii) Iodoform
- (iv) Phthalic or succinic anhydride.
- (v) Di-benzal acetone

### G. Tests for the functional groups present in organic compounds

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (primary) groups.

### H. Characteristic tests of arbohydrates, fats and proteins in pure samples and their detection in given food stuffs.

### I. Determination of concentration/molarity of $\text{KMnO}_4$ solution by titrating it against a standard solution of:

- (i) Oxalic acid
- (ii) Ferrous ammonium sulphate (Students will be required to prepare standard solutions by weighing themselves).

### J. Qualitative analysis

- 1) Determination of two cations from a given mixture of salts.
- 2) Determination of two anions from a given mixture of salts.

**Cations** –  $\text{Pb}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{As}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{NH}_4^+$ ,

**Anions** –  $\text{CO}_3^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{SO}_4^{2-}$ ,  $\text{NO}_2^-$ ,  $\text{NO}_3^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{PO}_4^{3-}$ ,  $\text{C}_2\text{O}_4^{2-}$ ,  $\text{CH}_3\text{COO}^-$   
(Note : Insoluble salts excluded.)

### PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources.

#### A few suggested Projects:

- 1 Study of presence of oxalate ions in guava fruit at different stages of ripening.
- 2 Study of quantity of casein present in different samples of milk.
- 3 Preparation of soyabean milk and its comparison with the natural milk with



- respect to curd formation, effect of temperature, etc.
- 4 Study of the effect of potassium bisulphate as food preservative under various conditions (temperature, concentration, time etc).
  - 5 Study of digestion of starch by salivary amylase and, effect of pH and temperature on it.
  - 6 Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
  - 7 Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).
  - 8 Study of common food adulterants in fat, butter, sugar, turmeric powder, chilli powder and pepper.
- Note :** Any investigatory project, can be chosen with the approval of the teacher.



## Biology (56)

Std. XI and XII

### Introduction

Higher secondary is the most crucial stage of education because at this juncture specialized disciplines of science are introduced. The present syllabus reinforces the concepts introduced in lower classes. Recently, the science of biology has undergone a paradigm shift that has transformed it from a collection of loosely related facts into a modern applied science.

Living organisms exhibit extremely complex functional system. Organisms seldom occur as isolated individuals. They are organized into populations and biological communities. Organisms, communities, ecosystems and environment constitute unique set of natural resources of great importance.

Knowledge of biology helps us to understand a common thread which holds all these components together. Understanding of biology will help in the sustainable development of the environment and will also ensure the existence of earth with all its amazing diversity.

This syllabus is designed to prepare students for various examinations conducted at state and national level. Hence it has been prepared in accordance with the guidelines shown in the final version of common core syllabi of COBSE, Delhi. Accordingly some additional topics from state Board syllabus have been deleted whereas the lacking topics have been added. The entire unit “Ecology and Environment” has now been added under Botany and Zoology sections.

### Objectives

The prescribed syllabus is expected to

- Promote the inherent skill of observation.
- Assist to understand the underlying principles of biological sciences and thereby develop scientific attitude towards biological phenomena.
- Help students to understand the functioning of organisms.
- Make students aware of issues of global importance.
- Guide students to perform easy experiments for better understanding of biological principles and to develop experimental skills required in practical work.
- Create awareness about the contribution of biology to human welfare.

Std. – XI

### Section I - Botany

#### Unit 1 Diversity in Living World:

##### Chapter 1- Diversity in organisms :

1. Diversity in living organisms-Brief idea.
2. Systematic and binomial system of nomenclature - meaning of the terms taxonomy, systematics, classification and nomenclature, Need of classification.

##### **Three domains of life, Concept of species.**

Taxonomic hierarchy with examples.  
Binomial nomenclature explanation, significance and examples.



- Classification of living organisms (five Kingdom classification) – Major groups and principles of classification for each Kingdom with examples.
- Lichens - Meaning, characters, examples and importance.
- Viruses and viroids - Definitions, characters, types with examples, Economic importance and list of viral diseases.

#### **Chapter 2 - Kingdom Plantae :**

- Salient features of major plant groups - Algae, Bryophyta, Pteridophyta, Gymnosperms and Angiosperms (Dicotyledons and Monocotyledons). Three to five salient features and two examples of each category.
- Botanical gardens and herbaria - Meaning, importance and list of gardens and herbaria in India.

#### **Unit 2 Structure and function of cell :**

##### **Chapter 3 - Biochemistry of cell :**

- Basic chemical constituents of living bodies.
- Structure and function of carbohydrates, proteins, lipids and nucleic acids in brief.
- Enzymes - Definition, **Types**, general properties, **Enzyme action** and factors affecting enzyme activity in brief.

##### **Chapter 4 Cell Division :**

- Cell cycle
- Mitosis
- Meiosis

#### **Unit 3 Structural organization in plants**

##### **Chapter 5 - Morphology of Plants :**

- Morphology, anatomy and functions of different parts - Root, stem, leaf, inflorescence, flower, fruit and seed. **(To be dealt along with the relevant practicals of the practical syllabus)**
- Plant tissues.

#### **Unit 4 Plant Physiology**

##### **Chapter 6 - Plant Water Relations and Mineral Nutrition :**

- Movement of water, food, nutrients and gases - Absorption of water and minerals, **Apoplast and Symplast Pathways**. Active and passive absorption in brief.

##### **2. Guttation**

Ascent of sap, **root pressure concept** and cohesion - tension theory.

Translocation of sugars **through phloem** brief account.

Transpiration – structure of stomata, mechanism of **opening and closing of stomata, Role of K<sup>+</sup> ions**

- Role of water and minerals - macronutrients and micronutrients and their role. **Mineral deficiency symptoms, Mineral toxicity, Elementary idea of Hydroponics, Nitrogen Metabolism (nitrogen cycle, biological nitrogen fixation)**

##### **Chapter 7 - Plant Growth and Development: Seed dormancy**

Germination - Hypogeal, epigeal and viviparous.

Definition and characteristics of growth.

Phases of growth, **Conditions of growth, Differentiation, de- differentiation, redifferentiation**

Sequence of developmental process in a plant cell

Growth regulators - auxins, gibberellins, cytokinines, ethylene and abscissic acid (role in brief) Photoperiodism, **Photomorphogenesis including brief account of Phytochromes (Elementary idea)**

Vernalization.



## Std. - XI

### Section II – Zoology

#### Unit 1 Diversity in Living World

##### Chapter 8 - Kingdom Animalia

- Salient features of major phyla under kingdom Animalia. Classification of following phyla with three to five salient features and two examples of each category: Porifera, Coelenterata, Ctenophora, Platyhelminthes, Nematelminthes, Annelida, Arthropoda, Mollusca, Echinodermata and Hemichordata. Classification of phylum Chordata upto class level with three to five salient features and two examples of each category: Urochordata, Cephalochordata, Cyclostomata, Chondrichthyes, Osteichthyes, Amphibia, Reptilia, Aves and Mammalia.
- Zoological parks and Museums - General idea with list.

#### Unit 2 Structure and function of cell

##### Chapter 9 - Organization of Cell

- Cell theory - brief account
- Prokaryotic and eukaryotic cell - structure and examples.
- Plant cell and animal cell.
- Nuclear organization - Nucleus, nucleolus and nucleoplasm.
- Cell wall and cell membrane - (fluid mosaic model).
- Cell organelles: Plastids, Mitochondria, Golgi complex, Lysosomes, Endoplasmic reticulum, Vacuoles, Ribosome and Centrioles (**ultrstructure and functions**). Microbodies, cytoskeleton, cilia and flagella.

#### Unit 3 Structural organization in Animals:

##### Chapter 10- Study of Animal Tissues :

###### 1. Animal tissues - types

- Epithelial tissues - simple epithelium (squamous, cuboidal, columnar, Ciliated, glandular). - compound epithelium (stratified).
- Connective tissue - (Areolar, Adipose, Tendons, Ligaments, Cartilage and Bone).
- Muscular tissue - (Smooth, striated and cardiac).
- Nervous tissue (Neurons, glial cells and types of neurons).

##### Chapter 11- Study of Animal Type

- Morphology, anatomy and functions of digestive, **circulatory, respiratory, nervous, and reproductive** systems of cockroach (**Brief account only**)

#### Unit 4 Human Physiology

##### Chapter 12- Human Nutrition

- Digestive system in brief
- Physiology of digestion, **gastrointestinal hormones, Peristalsis. Calorific value of proteins, carbohydrates and fats**
- Absorption, assimilation **and egestion**
- Nutritional and digestive disorders – PEM, indigestion, constipation, Jaundice, **vomiting and diarrhoea**

##### Chapter 13- Human Respiration

###### Respiratory organs in animals (Recall only)

- Respiratory system in brief
- Breathing- inspiration and expiration.
- Exchange of gases, transport of CO<sub>2</sub> and O<sub>2</sub> and tissue respiration.

###### Regulation of Respiration, Respiratory volumes.



- iv) Respiratory disorders- Asthma, **Emphysema** and occupational lung diseases.

#### Chapter 14 - Human skeleton and Locomotion:

Brief account of human skeleton:

A] Axial Skeleton

B] Appendicular Skeleton

(Details to be dealt with the relevant practical)

Types of joints - synarthroses, amphiarthroses, and diarthroses.

Types of diarthroses - ball and socket, hinge, condyloid, pivot, saddle and gliding joints.

Types of Movement- Ciliary, Flagellar, Muscular

Mechanism of muscle movement:

**Contractile proteins and Muscle contraction.** Skeletal and muscular disorders – **Myasthenia gravis**, Osteoporosis, arthritis, muscular dystrophy tetany and **gout**.

#### Std. XI - Biology Practicals Syllabus

##### (A) List of experiments:

1. Study of parts of compound microscope.
2. **Preparation of T. S. of dicot (sunflower) and monocot roots and stem** to study different plant tissues.
3. Study and describe three locally available flowering plants from the families- Solanaceae, Fabaceae and Liliaceae with respect to types of root-(tap and adventitious), stem (herbaceous and woody), leaf (arrangement, shape, venation, simple and compound) and floral characters.

4. Study of plasmolysis in epidermal peels.
5. Study of osmosis by Potato osmometer
6. Study of structure and distribution of stomata in upper and lower surface of leaf.
7. To test the presence of sugar, starch, proteins and fats from suitable plant and animal materials.
8. To study the digestion of starch by salivary amylase under different conditions of temperature and pH.

##### (B) Study/ Observation of the following (Spotting):

1. Study of specimens and identification with reasons:  
**Bacteria, Amoeba, Oscillatoria, Spirogyra, Rhizopus, yeast, Agaricus, Usnea, Riccia, Funaria, Nephrolepis, Cycas, sunflower and maize.**
2. Comparative study of rates of transpiration in upper and lower surface of leaf.
3. Study of different modifications of root (fusiform root, parasitic root, epiphytic root and pneumatophores).
4. Study of different modifications of stem (stem tuber, runner, and tendril).
5. Study of different modifications of leaf (leaflet and stipular tendril), leaf Spines, phyllode).
- 6.. Study of imbibition of seeds/raisins.
7. Study and identification of different types of inflorescence.
8. **Study of tissues and diversity in shapes and sizes of plant and animal cells- palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibres, mammalian blood smear, through temporary or permanent slides.**



9. Observation and comments on experimental set up on:
  - a) Phototropism
  - b) Suction due to transpiration.
  - c) Apical bud removal
10. Study of specimens and their identification with reasons – *Sycon*, *Hydra*, Pleurobrachia, Liverfluke, *Ascaris*, Leech, Earthworm, **Prawn, Silkworm, Honey bee**, Snail, Star-fish, *Balanoglossus*, Shark, Rohu, Frog, Lizard, Pigeon and Rat.
11. Study of human skeleton (except skull, hand bones and foot bones) and **different types of joints (synovial, cartilaginous and fibrous joints with one suitable example)**.
12. Study of external morphology of earthworm, cockroach and frog through models.
13. **Study of mitosis** in onion root tips and animal cells (**grasshopper**) from permanent slides.

## Std. - XII Biology

### Section I – BOTANY

#### Unit 1: Genetics and Evolution :

##### Chapter 1 - Genetic Basis of Inheritance:

Mendelian inheritance. Deviations from Mendelian ratio (gene interaction-incomplete dominance, co-dominance, multiple alleles **and Inheritance of blood groups**), **Pleiotropy, Elementary idea of polygenic inheritance.**

##### Chapter 2 - Gene: its nature, expression and regulation:

Modern concept of gene in brief-cistron, muton and recon. **DNA as genetic**

**material**, structure of DNA as given by Watson and Crick's model, **DNA Packaging**, semi conservative replication of eukaryotic DNA.

RNA: General structure, types and functions.

Protein Synthesis; central dogma, Transcription; Translation-Genetic Code, Gene Expression and Gene Regulation (The *Lac* operon as a typical model of gene regulation).

#### Unit 2: Biotechnology and its application:

##### Chapter 3 - Biotechnology: Process and Application :

Genetic engineering (Recombinant DNA technology):

Transposons, Plasmids, Bacteriophages; Producing Restriction Fragments, Preparing and cloning a DNA Library, Gene Amplification (PCR).

Application of Biotechnology in Agriculture – BT crops

Biosafety Issues (Biopiracy and patents)

#### Unit 3: Biology and Human Welfare :

##### Chapter 4 - Enhancement in Food Production

Plant Breeding

Tissue Culture: Concept of Cellular Totipotency,

Requirements of Tissue Culture (in brief), Callus Culture, Suspension Culture.

Single Cell Protein. **Biofortification.**

##### Chapter 5 - Microbes in Human Welfare:

Microbes in Household food processing.

Microbes in Industrial Production.

Microbes in Sewage Treatment.

Microbes in Biogas (energy) Production.

Microbes as Biocontrol Agents.

Microbes as Biofertilizers.



**Unit 4: Plant Physiology :****Chapter 6 - Photosynthesis**

Autotrophic nutrition

Site of Photosynthesis

Photosynthetic Pigments and their role.

Light-Dependent Reactions (Cyclic and non-cyclic photophosphorylation)

Light-Independent Reactions (C3 and C4 Pathways)

Chemiosmotic hypothesis, Photorespiration, Factors affecting Photosynthesis.

Law of limiting factors.

**Chapter 7 - Respiration**

ATP as currency of Energy

Mechanism of Aerobic (Glycolysis, **TCA Cycle and Electron Transport System**) and Anaerobic Respiration. **Fermentation**

Exchange of gases

Amphibolic pathway. Respiratory quotient of Nutrients.

Significance of Respiration.

**Unit 5: Reproduction in Organisms :****Chapter 8 - Reproduction in Plants**

Modes of Reproduction (Asexual and Sexual).

Asexual reproduction; uniparental modes-vegetative propagation, micropropagation

Sexual Reproduction: **structure of flower**

Development of male gametophyte,

Structure of anatropous ovule.

Development of female Gametophyte.

Pollination: Types and Agencies.

Outbreeding devices; pollen-pistil interaction.

Double Fertilization: Process and Significance.

Post-fertilization changes (development of endosperm and embryo, development of seed and formation of fruit)

Special modes-apomixis, parthenocarpy, polyembryony. Significance of seed and fruit formation.

**Unit 6: Ecology and Environment****Chapter 9: Organisms and Environment -I : Habitat and Niche**

Ecosystems: Patterns, components, productivity and decomposition, energy flow; pyramids of number, biomass, energy; nutrient cycling (carbon and phosphorous).

Ecological succession, Ecological services-carbon fixation, pollination, oxygen release. Environmental issues: agrochemicals and their effects, solid waste management, Green house effect and global warming, ozone depletion, deforestation, case studies (any two).

**Std. - XII Biology****Section II - ZOOLOGY****Unit 1: Genetics and Evolution :****Chapter 10 - Origin and the Evolution of Life :**

Origin of Life: Early Earth, Spontaneous, assembly of organic compounds,

Evolution: Darwin's contribution, Modern Synthetic Theory of evolution, Biological

Evidences, **Mechanism of evolution; Gene flow and genetic drift; Hardy-Weinberg principle; Adaptive radiation.**

Origin and Evolution of Human being.

**Chapter 11 - Chromosomal Basis of Inheritance**

The Chromosomal Theory.

Chromosomes.

Linkage and Crossing Over.

Sex-linked Inheritance (Haemophilia and colour blindness).



Sex Determination in Human being, **birds, honey bee.** **Mendelian disorders in humans-Thalassemia. Chromosomal disorders in human: Down's syndrome, Turner's syndrome and Klinefelter's syndrome.**

**Unit 2: Biotechnology and its application:**  
**Chapter 12- Genetic Engineering and Genomics**

DNA Finger Printing.

Genomics and Human Genome Project.

Biotechnological Applications in Health: Human insulin and vaccine production, Gene Therapy. **Transgenic animals.**

**Unit 3: Biology and Human Welfare**

**Chapter 13- Human Health and Diseases**

Concepts of Immunology: Immunity Types, **Vaccines,**

Structure of Antibody, Antigen-Antibody Complex, Antigens on blood cells.

Pathogens and Parasites (Amoebiasis, Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, Common cold and ring worm).

Adolescence, drug and alcohol abuse.

Cancer and AIDS.

**Chapter 14- Animal Husbandry**

Management of Farms and Farm Animals.

Dairy.

Poultry.

Animal Breeding.

Bee-Keeping.

Fisheries.

Sericulture

Lac culture

**Unit 4: Human Physiology :**

**Chapter 15- Circulation**

Blood composition and coagulation, **Blood groups.**

Structure and pumping action of Heart.

Blood Vessels.

Pulmonary and Systemic Circulation.

Heart beat and Pulse. Rhythmicity of Heart beat. **Cardiac output, Regulation of cardiac activity.**

Blood related disorders: Hypertension, coronary artery disease, angina pectoris, and heart failure.

ECG, Lymphatic System (Brief idea): **Composition of lymph and its functions.**

**Chapter 16- Excretion and osmoregulation**

Modes of excretion-Ammonotelism, ureotelism, uricotelism.

Excretory System.

Composition and formation of urine.

Role of Kidney in Osmoregulation.

**Regulation of kidney function: renin-angiotensin, atrial natriuretic factor, ADH and Diabetes insipidus, role of other organs in excretion.**

Disorders; Kidney failure, Dialysis, Kidney stone (renal calculi). Transplantation.

**Uraemia, nephritis.**

**Chapter 17- Control and Co-ordination**

Nervous System

Structure and functions of brain and

Spinal cord, brief idea about PNS and ANS.

Transmission of nerve impulse.

Reflex action.

Sensory receptors (eye and ear), **Sensory perception, general idea of other sense organs.**

Endocrine System

Endocrine glands

Hormones and their functions

**Mechanism of hormone action.**

Hormones as messengers and regulators.

Hormonal imbalance and diseases:



**Common disorders (Dwarfism, Acromegaly, cretinism, goiter, exophthalmic goiter, Diabetes mellitus, Addison's disease)**

### **Unit 5: Reproduction in Organisms :**

#### **Chapter 18- Human Reproduction**

Reproductive system in male and female.

Histology of testis and ovary.

Reproductive cycle.

Production of gametes, fertilization, implantation.

Embryo development up to three germinal layers.

Pregnancy, placenta, parturition and **lactation** (Elementary idea).

Reproductive health-birth control,

Contraception and sexually transmitted diseases. **MTP, Amniocentesis; Infertility and assisted reproductive technologies- IVF, ZIFT, GIFT (elementary idea for general awareness).**

### **Unit 6: Ecology and Environment :**

#### **Chapter 19-Organisms and**

#### **Environment-II :**

Population and ecological adaptations: population interactions-mutualism, competition, predation, parasitism, population attributes- growth, birth rate and death rate, age distribution.

Biodiversity and its conservation- Biodiversity- concept, patterns, importance, loss. Threats to and need for biodiversity conservation, Hotspots, endangered organisms, extinction, red data book, biosphere reserves, national parks and sanctuaries. Environmental issues: air pollution and its control, water pollution and its control and radioactive waste management. (Case studies any two)

### **Std. XII**

#### **(Upgraded) Biology Practicals**

#### **Experiments**

1. Dissect the given flower and display different whorls. Dissect anther and ovary to show number of chambers.
2. Study pollen germination on a slide.
3. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
4. Study of plant population density and **frequency** by quadrat method.
5. Prepare a temporary mount of onion root tip to study mitosis.
6. Separation of plant pigments by paper chromatography.
- 7 A) To study the rate of respiration in flower buds/leaf tissue and germinating seeds.  
B) Demonstration of anaerobic respiration.
8. Study the presence of suspended particulate matter in air at the two widely different Sites.
9. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.
10. To test the presence of urea and sugar in urine.
11. To test the presence of albumin and bile salts in urine.

#### **Study/observation of the following (Spotting):**

- 1 Study of flowers adapted to pollination by different agencies (wind, insect)



2. Study of pollen germination on stigma through a permanent slide.
- 3 To Study Mendelian inheritance using seeds of different colour/size of any plant.
- 4 Exercise on controlled pollination - Emasculation, tagging and bagging.
5. Study meiosis in onion bud cell or grass hopper testis through permanent slides.
6. Study of plants found in xerophytic and aquatic conditions with respect to their morphological adaptations.(Two plants each)
7. Study and identify stages of gamete development, i.e. T.S. of testis and T.S. ovary through permanent slides (from any mammal).
8. Study of V.S. of blastula through permanent slide.
9. To study prepared pedigree charts of genetic traits such as rolling of tongue, Blood groups, widow's peak, colour blindness.
- 10 To identify common disease causing organisms like *Plasmodium*, *Entamoeba*, *Ascaris* and ring worm through permanent slides or specimens. Comment on symptoms of diseases that they cause.
- 11 Study of animals found in xeric (desert) and aquatic conditions with respect to their morphological adaptations. (Two animals each)



# Drawing (57)

## Std. XI

### Introduction

The syllabus provides the study of the objectives of man-made and Natural objects. Drawing with different mediums to be handled in this field.

An opportunity is offered to the students to handle a variety of tools and mediums.

To inform them to know more about the applications and limitations while using these tools and materials. Students have to search for novel tools and mediums as well as traditional materials and mediums.

So as to get beautiful and attractive results through their efforts.

### Objective

#### To enable the students to

1. Make aware of various mediums.
2. Practice and handle various materials with expertise.
3. Study various elements in the nature and their shapes, colours, textures their formation and growth through observations.

### Choice of Subjects

1. Each of the subject is considered for 100 marks.
2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)
3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose - Theory paper - History of Art & Appreciation (60) with this practical paper.

### 1 . Sketching

- 1.1 Mediums of sketching
  - 1.1.1 Pencil Sketching
  - 1.1.2 Pen Sketching
  - 1.1.3 Sketch pen
  - 1.1.4 Colour- Brush
  - 1.1.5 Instrumental Sketching

### 2. Sketching of Natural Objects

- 2.1 Sketching of natural objects

### 3. Sketching of man-made objects

- 3.1 Sketching of man-made objects
- 3.2 Geometrical solid objects
- 3.3 Solid pottery

### 4. Land Scaping

- 4.1 Nature Sketching
- 4.2 Various Mediums
- 4.3 Sketching and Drawing in Nature's Spot.
- 4.4 Land Landscape

### 5. Object drawing

- 5.1 Sketching of objects of varied medium
- 5.2 Arrangements of objects in group
- 5.3 Realistic drawing

### 6. Calligraphy and lettering

- 6.1 Devnagari, Roman Script
- 6.2 Cut nips, brush etc,
- 6.3 Instruments, Letters, Arrangement

### Objectives

#### To enable the students to

1. Lead the study and practice of various materials and mediums towards perfection.
2. Seek pleasure/enjoy the self made creation through various medium and materials.
3. Acquire skills of rendering through the creation of self made art work.



4. Facilitate and motivate the learning of Art for art sake art for life sake and art as a profession.

### 1. Sketching

- 1.1 Mediums of Sketching
- 1.2 Micro Sketching
- 1.3 Natural Objects
- 1.4 Manmade Objects
- 1.5 Form, shape shade-light, Tone, texture

### 2. Perspective and Sketching

- 2.1 Perspective
- 2.2 Drawing of incident
- 2.3 Indoor Sketching
- 2.4 Outdoor Sketching
- 2.5 Architect Sketching

### 3. Memory Drawing

- 3.1 Memory Drawing
- 3.2 Sketching and Colouring
- 3.3 Imaginary Drawing

### 4. Proportion

- 4.1 Object & Object Group
- 4.2 Human Figures
- 4.3 Architect

### 5. Still life

- 5.1 Object Drawing
- 5.2 Still life
- 5.3 Object Group Arrangement

## Std.XII

### Introduction

The syllabus provides the study of the objectives of Man-made and Natural objects Drawing with different mediums to be handled in this field.

An opportunity is offered to the students to handle a variety of tools and mediums.

To inform them to know more about the applications and limitations while using

these tools and materials. Students have to search for novel tools and mediums as well as traditional materials and mediums.

So as to get beautiful and attractive results through their efforts.

It is necessary to acquaint the students with the tools, techniques, understanding, observation and practice while performing Drawing and Painting.

### Objective :

**To enable the students to –**

1. Lead the study and practice of various materials and mediums towards perfection.
2. Seek pleasure/enjoy the self made creation through various medium and materials.
3. Acquire skills of rendering though the creation of self made art work.
4. Facilitate and motivate the learning of Art for art sake art for life sake and art as a profession.

### Choice of Subjects

1. Each of the subject is considered for 100 marks.
2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)
3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose - Theory paper - History of Art & Appreciation (60) with this practical paper.

### 1. Sketching

- 1.1 Mediums of Sketching
- 1.2 Micro Sketching
- 1.3 Natural Objects
- 1.4 Manmade Objects
- 1.5 Form, shape shade-light, Tone, texture



**2. Perspective and Sketching**

- 2.1 Perspective
- 2.2 Drawing of incident
- 2.3 Indoor Sketching
- 2.4 Outdoor Sketching
- 2.5 Architect Sketching

**3. Memory Drawing**

- 3.1 Memory Drawing
- 3.2 Sketching and Colouring
- 3.3 Imaginary Drawing

**4. Proportion**

- 4.1 Object & Object Group
- 4.2 Human Figures
- 4.3 Architect

**5. Still life**

- 5.1 Object Drawing
- 5.2 Still life
- 5.3 Object Group Arrangement



## Design and Colour (58)

Std. XI

### Introduction

Art education is an important step in the process of learning. The syllabus provides the study objectives of 'Design and Colour' and different colour mediums to be handled with the techniques, understanding in this field. Similarly this syllabus will help students to develop imagination and creative skills. As well as the basic objective of this study and practice is to enrich a student with multi dimensional knowledge about art.

Create awareness about the elements in the nature, to study the artistic beauty and to creat such beauty, studding elements of design, observation of colours, studying colours, colour theory, colour wheel, colour schemes, their tonal values, tints and hues and cromas creating awareness about the beauty and reality about the colours and colour schemes.

### Objectives

#### To enable the students to

1. To make available an opportunity to students to observe various natural objects shapes, colours, textures and designs etc.
2. To motivate students to make beautiful and artistic self creations by using various objects, colours etc.
3. To make available an opportunity to students.
4. To develop skill of using various materials.
5. To help students studying of basic principles and various colours and colour gradations in desing.

### Choice of Subjects

1. Each of the subject is considered for 100 marks.
2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)
3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose - Theory paper - History of Art & Appreciation (60) with this practical paper.

#### 1. Fundamentals of Art

- 1.1 Line
- 1.2 Shape
- 1.3 Colour
- 1.4 Tone
- 1.5 Texture

#### 2. Design

- 2.1 Definition of Design
- 2.2 Composition
- 2.3 Type of Composition
  - Structural Design
  - Decorative Design
- 2.4 Type of Decorative Design
  - Natural form Design
  - Decorative form Design
  - Geometrical form Design
  - Abstract form Design
- 2.5 Principals of Design
  1. Repetition 2. Variety
  3. Contrast 4. Radiation
  5. Rhythm 6. Balance



7. Gradation 8. Dominance & Subordination 9. Proportion  
10. Transition 11. Harmony  
12. Unity

### 3. Colour & Colour Theory

- 3.1 Definition of Colour  
3.2 Colour Knowledge  
3.3 Artist's Colour Theory  
3.4 Characteristics of Colour  
3.5 Hue  
3.6 Value  
3.7 Symbolic Meanings of Colours  
3.8 Colour Mixtures

#### Practical work

#### No. of Practicals

##### 1. Fundamentals of art

- 5- To study and practical assignments of the following –
1. Line
  2. Shape
  3. Colour
  4. Tone
  5. Texture

##### 2. Design

- 1 - Creating a design based on Structural Design
- 1 - Creating a design based on Decorative Design  
(Providing detailed information about Decorative Design and creating designs using natural elements such as leaves, flowers, creepers, birds, butterfly, clouds, fishes, animals etc.)
- 2 - Natural form designs
- 3 - Decorative form designs
- 2 - Geometrical form designs
- 2 - Abstract form designs
- 2 - Basic Principles of design

(To study the basic principles of design and practical assignments.)

### 3. Colour & Colour Theory

Creating designs based on colour and colour theory.

- 2 - 1 – Hue, and 1 – Colour Value  
8 - Colour Mixtures –
1. Primary colours
  2. Secondary colours
  3. Tertiary colours
  4. Quarternary colours
  5. Advancing colours
  6. Relising colours
  7. Neutral colours
  8. High key & Low key
1. Use ¼ Imperial (28 cm. x 38 cm.) size drawing paper sheet for practical/assignment work.
1. While working on these assignments – Transparent and opaque colours, Oil pestles, Crayons and other available colours could separately or in combinations as a mixed media to achieve excellent results.

## Std.XII

### Introduction :

Art Education is an important step in the process of learning. The syllabus provides the study objectives of 'Design and Colour' and different colour mediums to be handled with the techniques, understanding in this field. Similarly this syllabus will help students to develop imagination and creative skills. As well as the basic objective of this study and practice is to enrich a student with multi dimensional knowledge about art.



Create awareness about the elements in the nature, to study the artistic beauty and to create such beauty, studying elements of design, observation of colours, studying colours, colour theory, colour wheel, colour schemes, their tonal values, tints, hues and Chromas and creating awareness about the beauty and reality about the colours and colour schemes.

### Objectives

The purpose of introducing practical exercises in 'Design and Colour' is to enable the students

1. To sharpen their observation skills through study of common objects and various natural, decorative, geometrical and abstract forms.
2. To develop an understanding of Design and Composition with the help of elements and the basic principles of Design/Composition.
3. To create the forms and the colour schemes in imagination with an ability to express them effectively in design.
4. To develop skill of using the various colour mediums effectively.
5. To express the different feelings and moods of life and nature in lines, forms, colours, tone and textures.

### Choice of Subjects

1. Each of the subject is considered for 100 marks.
2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)
3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose -

Theory paper - History of Art & Appreciation (60) with this practical paper.

## 1. No. of Practicals

### 1. Composition

#### 1.1 Organisation

#### 1.2 Composition

- Realistic Composition
- Decorative Composition
- Abstract Composition

#### 1.3 Principals of Design

1. Repetition
2. Variety
3. Contrast
4. Radiation
5. Rhythm
6. Balance
7. Gradation
8. Dominance & Subordination
9. Proportion
10. Transition
11. Harmony
12. Unity

#### 1.4 Samples of Decorative Designs

## 2. Painter's Mediums

### 2.1 Type of difference Mediums

### 2.2 Characteristics of Mediums

## 3. Colour Harmony

### 3.1 Colour Harmony

- Achromatic Harmony
- Chromatic Harmony
  - (a) Monochromatic Harmony
  - (b) Multichromatic Harmony

### 3.2 Multichromatic Harmony

- Analogous or Related Colour Harmony
- Contrast or Complementary Colour Harmony
- Warm Colour Harmony



- Cool Colour Harmony
- Triad Colour Harmony

## Practical Work

### 1. Composition

Creating compositions : arranging different elements of design in combination with basic principles of design in given space using different shapes.

- 2 - Realistic compositions
- 2 - Decorative compositions
- 2 - Abstract compositions
- 6 - To study and practical assignments of the following various basic principles of design.

- 1) Repetition & Variety
- 2) Contrast & Radiation
- 3) Rhythm & Balance
- 4) Gradation, Dominance & Subordination
- 5) Proportion & Transition
- 6) Harmony & unity.

### 2. Painter's Mediums

2 - To study and practice of various Colour Mediums and its characteristics i.e.

Pencil, Black & Coloured Inks, Charcoal, Pastles, Crayons, Water colour (Transparent or Opaque), Oil colour etc.

### 3. Colour Harmony

Creating designs based on Multichromatic Harmony

- 2 - Analogous or Related colour harmony
- 2 - Contrast or Complementary colour harmony
- 2 - Warm colour harmony
- 2 - Cool colour harmony
- 2 - Triad colour harmony

### Total 24 practicals

1. Use 1/4 Imperial (28 cm.x38 cm.) size drawing paper sheet for practical/ assignment work.
2. While working on these assignments – Transparent and opaque colours, Oil plates, Crayons and other available colours could separately or in combinations as a mix media to achieve excellent results.



## Pictorial Composition (59)

### Std. XI

#### Introduction

New educational policy has given emphasis on study of Fine Arts and allied subjects in the curriculum for Std. XI students. This will enhance their overall personality.

Due to the introduction of various subjects in fine arts: the intellectual, physical, aesthetical development of student could be ensured. So also keen observation, concentration abilities would be on the rise. It is very likely that the study of subjects in fine arts may either create an artist or an ardent art lover and admirer. The study of subjects in Fine Arts would help for stress management so as to be at ease in day-to-day life.

Study of pictorial composition with the study of other subjects in fine arts will enhance the vision for beauty of an art student. One's daily life provides for the subjects for composition. Student's keen observation can teach him to appreciate the beauty of man-made and natural objects. This aesthetical experiences can enrich his emotions and feelings for life. We can create beautiful things out of scrap and throw-away materials, just by sticking and pasting. Through the study of such compositions one can seek a very creative beautiful experience. Similarly this syllabus will facilitate students, to study various styles in Indian miniature art. Ajanta style of paintings and other decorative styles of paintings which are the treasures of Indian culture. Various observations through this study, shall develop the abilities for creating shapes and making different arrangements of elements with neatness and tidiness. This will give boost to

one's thinking process for creation of beauty in variety of ways.

#### Objective

Everyone has 'Art ability' in born. We can develop these abilities with the consistency of encouragement. Amongst the various objectives few important are following –

1. To encourage those students who have aptitude of Art & relevant skills.
2. To educate the students with techniques, colours, colour schemes & applications for the development of their creativity.
3. To increase their observation skills.
4. To increase their capacity of appreciation of 'Native Beauty'.
5. To concrete the pioneer/foundation of the students for higher art education.
6. Through the 'Art History', introduce the students to Indian ancient Art, culture, sculpture, Architecture with contemporary Art & its journey.

These are the significant objectives of this syllabus.

#### Choice of Subjects

1. Each of the subject is considered for 100 marks.
2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)
3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose - Theory paper - History of Art & Appreciation (60) with this practical paper.



**1. Pictorial Composition**

## 1.1 Introduction

**2. Fundamentals of Art**

## 2.2 Line

## 2.3 Shape

## 2.4 Colour

## 2.5 Tone

## 2.6 Texture

**3. Basic Principles of Design**

## 3.1 Repetition

## 3.2 Variety

## 3.3 Contrast

## 3.4 Radiation

## 3.5 Rhythm

## 3.6 Balance

## 3.7 Gradation

## 3.8 Dominance &amp; Subordination

## 3.9 Proportion

## 3.10 Transition

## 3.11 Harmony

## 3.12 Unity

**4. Print Making**

## 4.1 Printing on Natural Surface

## 4.2 Relief Printing

## 4.3 Intaglio Printing

**5. Style of Miniature Painting**

## 5.1 Introduction of Indian Miniature Painting

## 5.2 Miniature Painting Medium of Pictorial Composition

## 5.3 Parts of Miniature Painting

## 5.4 Study Painting on the basis of Miniature Painting

**6. Types and Information of Parts of Pictorial Composition**

## 6.1 Decorative

## 6.2 Geometric

## 6.3 Abstract

**Std – XII****I**ntroduction

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variety of ways.

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2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)

3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose - Theory paper - History of Art & Appreciation (60) with this practical paper.

#### 1. Difference between pictorial composition and memory drawing

Required work in Pictorial Composition

#### 2. Decorative Pictorial Composition

Decorative Method

2.1 Study of compositions of Various Artist.

2.2 Study of various decorative parts of Ajantha mural drawing.

#### 3. Geometric Pictorial Composition

Method Geometric

3.1 Study of Artist who works in Geometric methods.

3.2 Study of daily routine by using Geometric method

#### 4. Abstract Pictorial Composition (Advance)

Abstract Method

4.1 Advance abstract composition

4.2 Aim

4.3 Opinion

4.4 Objective

4.5 Reference picture



# History of Art & Appreciation (60)

## Std. XI

### Introduction

The History of Art is ancient. Sculpture, drawing has contributed a lot to the art. The art is a soul of culture. In the coming future, also the art will play an important role.

In the school education, the art education is crucial. The Western people are also attracted towards Indian Arts, traditions and the history. The Minakshi, the Kailas temple of Ellora, the Sun temple of Konarka, the Taj Mahal, the Kutubminar and the Ajintha Ellora caves with the cultural heritage, are the rich places of Indian art. Many people do education research in this Indian art and culture.

Keeping this in view, it is essential to study the History of the Western Art with Indian Art. So this separate subject is selected for the study.

The students will have to present a project for this subject. As a result, the students will do self study. The interest and favour will be created among the students about the Indian Art. They will preserve and enrich the Indian culture.

### Objectives

#### To enable the students to

1. Develop the Artistic View
2. Acquire knowledge about Indian & Western culture.
3. Study of Indian & Western Architecture, Sculpture & Painting
4. To create awareness in student about the protection of public properties' cultural heritage.

### Choice of Subjects

1. Each of the subject is considered for 100 marks.
2. Students will have to choose only one Theory paper - History of Art & Appreciation (60)
3. Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58), Pictorial Composition (59). But they must choose - Theory paper - History of Art & Appreciation (60) with this practical paper.
1. Indus Valley Civilization 3000 B.C.to 1500 B.C.
  - 1.1 Back - Ground
  - 1.2 Architecture
  - 1.3 Sculpture
  - 1.4 Seals
  - 1.5 Artistic Things & Toys
2. Period of Mouryas 322 B.C. to 185 B.C.
  - 2.1 Back – Ground
  - 2.2 Architecture
  - 2.3 Sculpture
  - 2.4 Singularitys of Mouryas Art
3. Shunga Art 185 B.C. to 28 B.C.
  - 3.1 Back – Ground
  - 3.2 Architecture
  - 3.3 Sculpture
4. Satavahana & Andra Art 230 B.C.to 225 A.D.
  - 4.1 Back – Ground
  - 4.2 Architecture
5. Mathura Gandar School & Kushan Period 1 A.D.to 2 A.S.
  - 5.1 Back – Ground



- 5.2 Architecture
6. Gupta Period – Golden Age of Indian Art  
320 A.D.to 650 A.D.
- 6.1 Back – Ground
- 6.2 Architecture
- 6.3 Sculpture
- 6.4 Painting
7. Western Art of prehistoric Man 10,000 \ B.C. B.C. to 6000 B.C.
- 7.1 Back – Ground
- 7.2 Old Stone Age Painting
- 7.3 New Stone Age
8. Egyptain Art 4000 B.C. to 1500 B.C.
- 8.1 Back – Ground
- 8.2 Architecture
- 8.3 Sculpture
- 8.4 Painting
9. Greek Art 700 B.C.to 4<sup>th</sup> A.D.
- 9.1 Architecture
- 9.2 Sculpture
10. Roman Art 31 B.C. to 314 A.D.
- 10.1 Architecture
- 10.2 Sculpture
- History of Art & Appreciation (60)

## Std. XII

### Introduction

The History of Art is ancient. Sculpture, drawing has contributed a lot to the art. The art is a soul of culture. In the coming future, also the art will play an important role.

In the school education, the art education is crucial. The Western people are also attracted towards Indian Arts, traditions and the history. The Minakshi, the Kailas temple of Ellora, the Sun temple of Konarka, the Taj Mahal, the Kutubminar and the Ajintha Ellora

caves with the cultural heritage, are the rich places of Indian art. Many people do education research in this Indian art and culture.

Keeping this in view, it is essential to study the History of the Western Art with Indian Art. So this separate subject is selected for the study.

The students will have to present a project for this subject. As a result, the students will do self study. The interest and favour will be created among the students about the Indian Art. They will preserve and enrich the Indian culture.

### Objectives

#### To enable the students to

1. Develop the Artistic View
2. Acquire knowledge about Indian & Western culture.
3. Study of Indian & Western Architecture, Sculpture & Painting
4. To create awareness in student about the protection of public properties' cultural heritage.

### Choice of Subjects :

- 1) Each of the subject is considered for 100 marks.
- 2) Students will have to choose only One Theory paper. History of Art & Appreciation (60)
- 3) Students will have to choose only one practical paper from - Drawing (57), Design & Colour (58) Pictorial composition (59) But they must choose - Theory Paper - History of Art & Appreciation (60) with this practical paper.



## Theory

1. **Indian Temples Architecture**
  - 1.1 Construction of Hindu Temples
  - 1.2 North Indian Temples
  - 1.3 South Indian Temples & Sculpture
2. **Hindu Muslim & Mughal Architecture**
  - 2.1 Kutubminar
  - 2.2 Golghumat
  - 2.3 Buland Darwaza
  - 2.4 Taj-Mahal
3. **Art of Indian Miniatures.**
  - 3.1 Pal and Jain miniatures
  - 3.2 Rajastani miniatures.
  - 3.3 Mughal miniatures
  - 3.4 Pahari miniatures
4. **Indian Artists and Painting- Sculpture**
  - 4.1 Artists ( Painting)
  - 4.2 Artists (Sculpture)
  - 4.3 Painting and Sculpture
5. **Western Art. Art of the middle Ages**
  - 5.1 Christain and Byzantine Art
  - 5.2 Gothic Art
6. **The Art of the Renaissance and the famous Trio**
  - 6.1 Art of the Renaissance
  - 6.2 famous Trio
  - 6.3 Painting and Sculpture
7. **Baroque Art**
  - 7.1 Baroque Art
  - 7.2 Artists
8. **Modern Art, Ism's and Artists**
  - 8.1 Ism's
  - 8.2 Artists
  - 8.3 Painting



## History and Development of Indian Music (65)

### Std. XI

#### Introduction

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to develop the creativity of the students in Art Education. The curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

#### Objectives

After completing the syllabus in 'Indian Music', the students will come to know –

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music
4. Instrumental Music

#### The student will be able to

1. Define Technical Terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing

3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into various categories.
6. Modern Musical Form
7. The importance of Music in everyday and social life.
8. Place of Music in education
9. The use of Modern Musical Aids in Music
10. Recognize Musical Notes.
11. The sing/play different Ragas
12. Write and recite Theka bols of Talas with demonstration
13. Write notation of Song and Talas
14. sing/play different forms with Gayaki Anga
15. Live stage performance (Majlis) with accompaniment – similarly
  1. To help for self-employment
  2. For realisation of rich heritage of music
  3. To inculcate moral values like unity, equality, brotherhood etc.
  4. To co-relate for the teaching of other subjects.
  5. Application of Music for advertisements, industries etc.

#### 'Indian Music' consists of the following Four Subject :

- 1) History and Development of Indian Music. (Theory) - 65
- 2) Vocal Light Music (Practical) - 66
- 3) Vocal classical Music (Practical) - 67
- 4) Instrumental Music (Practical) - 68



**Choice of Subject :**

- i) Each of the four subjects mentioned above under 'Indian Music' is considered for 100 marks.
- ii) 'History and Development of Indian Music' (Theory) shall be compulsory for all students offering 'Indian Music' i.e. - Practical Subjects
- iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.
- iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical Music OR instrumental Music, it is compulsory to take the subject called 'History and Development of Indian Music'.
- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

**Implementation of the Practical**

1. For Teaching a Music Practical Subjects (Sub.No.66, 67, 68). The maximum number of students in one batch should be Twenty only.
2. For Vocal Light & Vocal Classical Music (66, 67) there should be separate batches for boys and girls, based on the Natural Vocal Limitations.
3. There should be six periods in a week (one period – every day) for all music practical subjects per batch.

**XI - Syllabus****1. History of Indian Music**

- 1.1 Vedic Period
- 1.2 Mogal Period

**2 Gurukul Padhhati**

- 2.1 Nature
- 2.2 Merit and Demerit

**3 Gharana : Study in View of Khyal Gayaki**

- 3.1 Gwalieor Gharana
- 3.2 Agra Gharana
- 3.3 Jaipur Gharana
- 3.4 Kirana Gharana

**4 Biographical Sketches**

- 4.1 Pt.Balkrishnabuwa Ichalkaranijikar
- 4.2 Ustad Faiyaz Khan
- 4.3 Ustad Alladiya Khan
- 4.4 Ganhira Hirabai Badodekar

**5 Musical Forms**

- 5.1 Bhavgeet
- 5.2 Folksong
- 5.3 Bhajan
- 5.4 Natya Geet

**6 Classification of Instruments**

- 6.1 Four types of Instruments
- 6.2 Detail information about Tanpura, Tabla, Harmonium

**7. Modern Forms**

- 7.1 Orchestra
- 7.2 Choral Music
- 7.3 Fusion

**Std.XII****Introduction**

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to develop the creativity of the students in Art Education. The curriculum of music would definitely help in developing the hidden qualities of the students.



Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

### Objectives

After completing the syllabus in 'Indian Music', the students will come to know –

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music
4. Instrumental Music

### The student will be able to

1. Define Technical Terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing
3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into various categories.
6. Modern Musical Form
7. The importance of Music in everyday and social life.

8. Place of Music in education
9. The use of Modern Musical Aids in Music
10. Recognize Musical Notes.
11. The sing/play different Ragas
12. Write and recite Theka bols of Talas with demonstration
13. Write notation of Song and Talas
14. sing/play different forms with Gayaki Anga
15. Live stage performance (Majlis) with accompaniment – similarly
  1. To help for self-employment
  2. For realisation of rich heritage of music
  3. To inculcate moral values like unity, equality, brotherhood etc.
  4. To co-relate for the teaching of other subjects.
  5. Application of Music for advertisements, industries etc.

### 'Indian Music' consists of the following Four Subject :

- 1) History and Development of Indian Music. (Theory) - 65
- 2) Vocal Light Music (Practical) - 66
- 3) Vocal classical Music (Practical) - 67
- 4) Instrumental Music (Practical) - 68

### Choice of Subject :

- i) Each of the four subjects mentioned above under 'Indian Music' is considered for 100 marks.
- ii) 'History and Development of Indian Music' (Theory) shall be compulsory for all students offering 'Indian Music' i.e. - Practical Subjects
- iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.
- iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical



Music OR instrumental Music, it is compulsory to take the subject called 'History and development of Indian Music'.

- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

<b>Units</b>	<b>Sub-units</b>
<b>1. History of Indian Music</b>	
	1.1 Pre-Independence and
	1.2 post-independence period
<b>2. Biographical sketches</b>	
	2.1 Pt.Vishnu Digambar Paluskar
	2.2 Pt.Vishnu Narayan Bhatkhande
	2.3 Ustad Abdul Karim Khan
	2.4 Natsamrat Balgandharva
	2.5 Pt.Govindrao Tembe
	2.6 Pt.Gajananbuwa Joshi
	2.7 Pt.Ravi Shankar
	2.8 Ustad Aliakbar Khan
	2.9 Ustad Bismilla Khan
	2.10 Pt.Pannalal Ghosh
	2.11 Swarsamradni Lata Mangeshkar

<b>3. Musical Forms</b>	
	3.1 Dhrupad
	3.2 Dhamar
	3.3 Khayal
	3.4 Tarana
	3.5 Thumari
<b>4. Importance of Music in Daily life</b>	
<b>5. Importance of Music in social life</b>	
<b>6. Importance of Music in Education</b>	
<b>7. Use of Audio-Visual aids in the study of music</b>	
	7.1 Radio
	7.2 tape-recorder
	7.3 Television
	7.4 Computer
<b>8. Comparative study</b>	
	8.1 Vocal music – Instrumental music
	8.2 Solo singing – Group singing
	8.3 Classical music – light music
	8.4 solo instrumental playing – instruments for accompaniment
<b>9. Stage Performance/Presentation</b>	
	9.1 Artists
	9.2 Accompaniment
	9.3 Listeners
	9.4 Organizers



## Vocal Light Music (66)

### Std. XI

#### Introduction

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to develop the creativity of the students in Art Education, The curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way only they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

#### Objectives :

After completing the syllabus in 'Indian Music', the students will come to know –

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music
4. Instrumental Music

#### The student will be able to

1. Define technical terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing

3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into various categories.
6. Modern Musical Form
7. The importance of Music in everyday and social life.
8. Place of Music in education
9. The use of Modern Musical Aids in Music
10. Recognize Musical Notes.
11. The Sing/play different Ragas
12. Write and recite Theka bols of Talas with demonstration
13. Write notation of Song and Talas
14. sing/play different forms with Gayaki Anga
15. Live stage performance (Majlis) with accompaniment – similarly
  1. To help for self-employment
  2. For realisation of rich heritage of music
  3. To inculcate moral values like unity, equality, brotherhood etc.
  4. To co-relate for the teaching of other subjects.
  5. Application of Music for advertisements, industries etc.

#### 'Indian Music' consists of the following Four Subject :

- 1) History and Development of Indian Music. (Theory) - 65
- 2) Vocal Light Music (Practical) - 66
- 3) Vocal classical Music (Practical) - 67
- 4) Instrumental Music (Practical) - 68



**Choice of Subject :**

- i) Each of the four subjects mentioned above under. 'Indian Music' is considered for 100 marks.
- ii) 'History and Development of Indian Music' (Theory) shall be compulsory for all students offering 'Indian Music' i.e. - Practical Subjects
- iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.
- iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical Music OR instrumental Music, it is compulsory to take the subject called 'History and develop of Indian Music'.
- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

2	Alankar	2.1.	Shuddha Swaras
3	Theory of Ragas	3.1	Yaman.
		3.2	Durga
		3.3	Bhoopali
		3.4	Bihag
		3.5	Bhimpalas.
4	Theory of Talas with demonstration	4.1	Trital
		4.2	Ektal.
		4.3	Kerva.
		4.4	Dadra.
		4.5	Dhumali.
5	Presentation	5.1	Natya Geet (Any Two) in following Ragas.
		5.1.1	Bhoopali.
		5.1.2	Yaman
		5.1.3	Bihag
		5.1.4	Durga
		5.1.5	Bhimpalas
6	Specific forms presentation	6.1	Abhang (Any 2)
		6.2	Bhavgeet (Any 2)
		6.3	Group-Song (Any 2)
		6.4	Folk Song (Any 1)
		6.5	Environment Song. (Any 1)
7	Definition	7.1	Tala Anga - Technical terms Sam, Kal, Matra, Khand, Tali, Laya, Avartan.
		7.2	Raga Anga-Sangeet, Swara, (Shuddha&Vikrit) Thaat, Aroha, Avaroh, Vadi, Samvadi, Saptak, Jati, Gansamay.
8	Presentation	8.1	Sargam (Any two)

**Implementation of the Music Practical Subjects**

- For Teaching a Music Practical Subjects (Sub.No.66, 67, 68). The maximum number of students in one batch should be Twenty only.
- For Vocal Light & Vocal Classical Music (66, 67) there should be separate batches for boys and girls, based on the Natural Vocal Limitations.
- There should be six periods in a week (one period – every day) for all music practical subjects per batch.

**Curriculum**

S.No.	Unit	Sub.Unit
1	Swara	1.1 Shuddha Swara
		1.2 Vikrit Shwara



- 9 Notation in prescribed Raga. Sargam (Any one) in prescribed Raga.
- 10 Practical (Record Book)

## Vocal Light Music - Std. XII

### Introduction

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to develop the creativity of the students in Art Education. The curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

### Objectives

After completing the syllabus in 'Indian Music', the students will come to know –

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music

### 4. Instrumental Music

#### The student will be able to

1. Define Technical Terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing
3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into various categories.
6. Modern Musical Form
7. The importance of Music in everyday and social life.
8. Place of Music in education
9. The use of Modern Musical Aids in Music
10. Recognize Musical Notes.
11. The sing/play different Ragas
12. Write and recite Theka bols of Talas with demonstration
13. Write notation of Song and Talas
14. sing/play different forms with Gayaki Anga
15. Live stage performance (Majlis) with accompaniment – similarly
  1. To help for self-employment
  2. For realisation of rich heritage of music
  3. To inculcate moral values like unity, equality, brotherhood etc.
  4. To co-relate for the teaching of other subjects.
  5. Application of Music for advertisements, industries etc.

#### 'Indian Music' consists of the following Four Subject :

- 1) History and Development of Indian Music. (Theory)



- 2) Vocal Light Music (Practical) - 66  
 3) Vocal classical Music (Practical) - 67  
 4) Instrumental Music (Practical) - 68

**Choice of Subject :**

- i) Each of the four subjects mentioned above under. 'Indian Music' is considered for 100 marks.  
 ii) 'History and Development of Indian Music' (Theory) shall be compulsory for all students offering 'Indian Music' i.e. - Practical Subjects  
 iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.  
 iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical Music OR instrumental Music, it is compulsory to take the subject called 'History and develop of Indian Music'.  
 v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

5 Presentation

- 4.2 Roopak.  
 4.3 Kawwali.  
 4.4 Zaptal..  
 5.1 Natya Geet  
 (Natya Geet of one dramatist one from A and B Group)

5.1.1-A- K.P.Khadilkar.  
 R.G.Gadkari.  
 G.B.Deval.  
 Annasaheb Kirloskar

5.1.2 -B-Vidyadhar Gokhale.  
 V.V.Shirwadkar.  
 Purushottam Darvekar.  
 Vasant Kanetkar.

5.2 Gayaki.

6 Presentation

6.1 To sing Sargam with Aroh-Avaroh in prescribed Raga. (Any two)

7.1 Group-Song (One)

7.2 Folk Song (One)

8.1 Jan-gan-man.

8.2 Vande mataram.

8 National Anthem  
 9 Definition- Technical turms.

9.1 Tal Anga – Sam, Kal, Matra, Khand, Tali, Avartan, Laya.

9.2 Raga Anga – Sangeet, Shuddha and Vikrit swara, Thaata,

Sr.No.	Unit	Sub.Unit
1	Swara	1.1 Shuddha Swara 1.2 Vikrit Shwara
2	Alankar	2.1. Shuddha Swaras
3	Theory of Ragas	3.1 Pilu. 3.2 Des. 3.3 Pahadi. 3.4 Mand. 3.5 Kafi. 3.6 Khamaj 3.7 Tilang. 3.8 Bhairavi.
4	Theory & demonstration of Talas.	4.1 All talas prescribal for Std.XI.

7 Specific forms presentation

8 National Anthem

9 Definition- Technical turms.



- Jati, Vadi,  
Samvadi,  
Gan samay
- 9.3 Gayaki Anga –  
Alap, Taan,  
Meend, Kan,  
Murki.
- 10 Notation  
writing
- 10.1 Sargam Notation  
any one Ragas.
- 10.2 Natya Geet- write  
the notation of  
any one  
Natyageet in  
prescribed Raga.
- 11 Practical  
(Record Book)



## Vocal Classical Music (67)

### Std. XI

#### Introduction :

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to develop the creativity of the students in Art Education, The curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way only they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

#### Objectives

After completing the syllabus in 'Indian Music', the students will come to know

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music
4. Instrumental Music

#### The student will be able to

1. Define technical terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing

3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into various categories.
6. Modern Musical Form
7. The importance of Music in everyday and social life.
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9. The use of Modern Musical Aids in Music
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12. Write and recite Theka bols of Talas with demonstration
13. Write notation of Song and Talas
14. sing/play different forms with Gayaki Anga
15. Live stage performance (Majlis) with accompaniment – similarly
  1. To help for self-employment
  2. For realisation of rich heritage of music
  3. To inculcate moral values like unity, equality, brotherhood etc.
  4. To co-relate for the teaching of other subjects.
  5. Application of Music for advertisements, industries etc.

#### 'Indian Music' consists of the following Four Subject :

- 1) History and Development of Indian Music. (Theory) - 65
- 2) Vocal Light Music (Practical) - 66
- 3) Vocal classical Music (Practical) - 67



4) Instrumental Music (Practical) - 68

**Choice of Subject :**

- i) Each of the four subjects mentioned above under. 'Indian Music' is considered for 100 marks.
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- iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.
- iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical Music OR instrumental Music, it is compulsory to take the subject called 'History and develop of Indian Music'.
- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

**Implementation of the Music Practical Subjects**

1. For Teaching a Music Practical Subjects (Sub.No.66, 67, 68). The maximum number of students in one batch should be Twenty only.
2. For Vocal Light & Vocal Classical Music (66, 67) there should be separate batches for boys and girls, based on the Natural Vocal Limitations.
3. There should be six periods in a week (one period – every day) for all music practical subjects per batch.

**Curriculum**

**Sr.No. Unit Sub unit**

1. Swara 1.1 Shuddha Swara.

- |    |                                 |     |  |
|----|---------------------------------|-----|--|
| 2. | Alankar                         | 1.2 | Vikrit Swara.                            |
| 3. | Theory of Ragas.                | 2.1 | Shuddha Swara's                          |
|    |                                 | 3.1 | Khamaj                                   |
|    |                                 | 3.2 | Durga                                    |
|    |                                 | 3.3 | Kafi                                     |
|    |                                 | 3.4 | Bihag                                    |
|    |                                 | 3.5 | Bhairavi                                 |
|    |                                 | 3.6 | Alhiyya Bilawal                          |
|    |                                 | 3.7 | Yaman                                    |
|    |                                 | 3.8 | Bhoopali                                 |
|    |                                 | 3.9 | Bhimpalas                                |
| 4. | Theory & demonstration of Talas | 4.1 | Trital                                   |
|    |                                 | 4.2 | Ektal                                    |
|    |                                 | 4.3 | Zaptal                                   |
|    |                                 | 4.4 | Kerwa                                    |
|    |                                 | 4.5 | Dadra                                    |
|    |                                 | 4.6 | Roopak                                   |
|    |                                 | 4.7 | Dhumali                                  |
| 5. | Presentation                    | 5.1 | Sargam (Any Two)                         |
|    |                                 | 5.2 | Laxangeet (Any Two) In prescribed Ragas. |
| 6. | Presentation                    | 6.1 | Chhota Khyal (Any Two)                   |
|    |                                 | 6.2 | Alap - 2-2 Alap in sthai & antara.       |
|    |                                 | 6.3 | Taana - 2-2Taana in sthai & antara.      |
|    |                                 | 6.4 | Khamaj                                   |
|    |                                 | 6.5 | Kafi                                     |
|    |                                 | 6.6 | Durga                                    |
|    |                                 | 6.7 | Bihag                                    |
|    |                                 | 6.8 | Bhairavi                                 |
|    |                                 | 6.9 | Alhiyya-Bilawal                          |
| 7. | Presentation                    | 7.1 | Vilambit Khyal (Any two)                 |
|    |                                 | 7.2 | Chhota Khyal (only Bandish)              |



		Yaman, Bhoopali, Bhimpalās
8.	Specific forms Presentation.	8.1 Tarana (one) 8.2 Bhajan (one) or Environment Song (one)
9.	Definitions – Technical terms.	9.1 Tal Anga – Sam, Kal, Matra, Khand, Tali, Awartan, Laya. 9.2 Raga Anga – Sangeet, Swara, Chala Swar, Achala Swar, Komal Swara, Tivra Swara, Thaata, Aroha, Awarha, Vadi, Samvadi, Anuvadi, Vivadi, Varja, Saptak, Jati, Gansamay, Pakad
10.	National Anthem	10.1 Jan-gan-man. 10.2 Vande mataram
11.	Notation Writing	11.1 One Sargam from Unit No.6 11.2 One Sargam from Unit No.7
12.	Record Book	

## Std. XII

### Introduction

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to

develop the creativity of the students in Art Education. The curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

### Objectives

After completing the syllabus in 'Indian Music', the students will come to know –

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music
4. Instrumental Music

### The student will be able to

1. Define Technical Terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing
3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into



- various categories.
6. Modern Musical Form
  7. The importance of Music in everyday and social life.
  8. Place of Music in education
  9. The use of Modern Musical Aids in Music
  10. Recognize Musical Notes.
  11. The sing/play different Ragas
  12. Write and recite Theka bols of Talas with demonstration
  13. Write notation of Song and Talas
  14. sing/play different forms with Gayaki Anga
  15. Live stage performance (Majlis) with accompaniment – similarly
    1. To help for self-employment
    2. For realisation of rich heritage of music
    3. To inculcate moral values like unity, equality, brotherhood etc.
    4. To co-relate for the teaching of other subjects.
    5. Application of Music for advertisements, industries etc.

**'Indian Music' consists of the following Four Subject :**

- 1) History and Development of Indian Music. (Theory) - 65
- 2) Vocal Light Music (Practical) - 66
- 3) Vocal classical Music (Practical) - 67
- 4) Instrumental Music (Practical) - 68

**Choice of Subject :**

- i) Each of the four subjects mentioned above under. 'Indian Music' is considered for 100 marks.
- ii) 'History and Development of Indian Music' (Theory) shall be compulsory for all students offering 'Indian Music' i.e. - Practical Subjects

- iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.
- iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical Music OR instrumental Music, it is compulsory to take the subject called 'History and develop of Indian Music'.
- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

**Syllabus**

S.No.	Unit	Sub unit
1.	Swara	1.1 Shuddha Swara. 1.2 Vikrit Swara.
2.	Alankar	2.1 Shuddha Swar's Alankar
3.	Theory of Ragas	3.1 Kedar 3.2 Jounpuri 3.3 Bhairav 3.4 Bageshree 3.5 Shankara 3.6 Tilak kamod 3.7 Deskar 3.8 Malkauns 3.9 Vrindawani Sarang
4.	Theory & demonstration of Talas	4.1 All talas prescribed for Std.XI 4.2 Zumra 4.3 Tilwada 4.4 Choutal 4.5 Dhamar
5.	Presentation	Chhota Khyal (Any two)



- |                 |  |                          |   |
|-----------------|--|--------------------------|---|
|                 | 5.1 Shankara                                   |                          | 8.2 Chatarang   |
|                 | 5.2 Tilakkamod                                 | 9. Definition            | 9.1 All definitiions<br>Technical terms<br>prescribed for<br>Std.XI |
|                 | 5.3 Deskar                                     |                          | 9.2 Alap, Taan,<br>Meend,<br>Kanaswara,<br>Murki                    |
|                 | 5.4 Malkauns                                   |                          | 10.1 Notation of<br>Chhota Khyal<br>from Unit 5                     |
|                 | 5-5 Vrindawani<br>Sarang                       |                          | 10.2 Notation of<br>Chhotal Khyal<br>from Unit 6.                   |
| 6. Presentation | Vilambit Khyal<br>(Any two)                    | 10. Notation<br>Writting |   |
|                 | 6.1 Kedar                                      |                          |   |
|                 | 6.2 Bhairav                                    |                          |   |
|                 | 6.3 Jounpuri                                   |                          |   |
|                 | 6.4 Bageshree                                  |                          |   |
| 7. Presentation | 7.1 Dhrupad (one)                              |                          |   |
|                 | 7.2 Dhamar (one)                               |                          |   |
| 8. Presentation | 8.1 Any two Sargam<br>given in the<br>syllabus | 11. Record Book          |   |



## Instrumental Music (68)

### Std. XI

### Introduction

Music plays a very significant role in National and State Board's Art Education Curriculum. Since there is a lot of scope to develop the creativity of the students in Art Education, The curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why Art has been given significance in the curriculum. While restructuring the curriculum the students have been given the opportunities as per their age and interest and due to that his ability to express & stage daring would increase surely. The student would take pleasure after the study of each unit. They would do introspection. In this way only they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

### Objectives

After completing the syllabus in 'Indian Music', the students will come to know

1. History and Development of Indian Music
2. Vocal Light Music
3. Vocal Classical Music
4. Instrumental Music

### The student will be able to

1. Define technical terms in Indian Music.
2. Differentiate between the characteristics of main school of Khyal singing

3. Describe the life sketches of well known Musicians, Instrumentalists & Musicologists
4. List the guidelines for appreciation of Music
5. Classify Musical Instruments of India into various categories.
6. Modern Musical Form
7. The importance of Music in everyday and social life.
8. Place of Music in education
9. The use of Modern Musical Aids in Music
10. Recognize Musical Notes.
11. The Sing/play different Ragas
12. Write and recite Theka bols of Talas with demonstration
13. Write notation of Song and Talas
14. sing/play different forms with Gayaki Anga
15. Live stage performance (Majlis) with accompaniment – similarly
  1. To help for self-employment
  2. For realisation of rich heritage of music
  3. To inculcate moral values like unity, equality, brotherhood etc.
  4. To co-relate for the teaching of other subjects.
  5. Application of Music for advertisements, industries etc.

### 'Indian Music' consists of the following Four Subject :

- 1) History and Development of Indian Music. (Theory) - 65
- 2) Vocal Light Music (Practical) - 66
- 3) Vocal classical Music (Practical) - 67



4) Instrumental Music (Practical) - 68

**Choice of Subject :**

- i) Each of the four subjects mentioned above under 'Indian Music' is considered for 100 marks.
- ii) 'History and Development of Indian Music' (Theory) shall be compulsory for all students offering 'Indian Music' i.e. - Practical Subjects
- iii) The theory paper called 'History and Development of Indian Music' can be chosen independently.
- iv) But while choosing the Practical Papers i.e. Vocal Light Music OR Vocal Classical Music OR instrumental Music, it is compulsory to take the subject called 'History and development of Indian Music'.
- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

1. For Teaching a Music Practical Subjects (Sub.No.66, 67, 68). The maximum number of students in one batch should be Twenty only.
2. For Vocal Light & Vocal Classical Music (66, 67) there should be separate batches for boys and girls, based on the Natural Vocal Limitations.
3. There should be six periods in a week (one period – every day) for all music practical subjects per batch.

**Curriculum**

**Sr.No. Unit Subunit**

- |    |         |     |                |
|----|---------|-----|----------------|
| 1. | Swara   | 1.1 | Shuddha Swara. |
|    |         | 1.2 | Vikrit Swara.  |
| 2. | Alankar | 2.1 | Shuddha Swaras |

3. Theory of Ragas

- 3.1 Khamaj
- 3.2 Durga
- 3.3 Kafi
- 3.4 Bihag
- 3.5 Bhairavi
- 3.6 Alhiyya-Bilawal
- 3.7 Yaman
- 3.8 Bhoopali
- 3.9 Bhimpalas

4. Theory & demonstration of Talas

- 4.1 Trital
- 4.2 Ektal
- 4.3 Zaptal
- 4.4 Kerwa
- 4.5 Dadra
- 4.6 Rupak
- 4.7 Dhumali

5. Presentation

- 5.1 Rajakhani Gat (Any Two)
- 5.2 Alap (Minimum Two alaps in Sthayee and Antara each)
- 5.3 Taan (Minimum Two taanas in Sthayee and Antara each) in the following Ragas

- 5.4 Khamaj
- 5.5 Kafi
- 5.6 Durga
- 5.7 Bihag
- 5.8 Bhairavi
- 5.9 Alhiyya-Bilawal

6. Presentation

- 6.1 Masidkhani Gat (Any Two)
- 6.2 Rajakhani Gat (Any Two) in the following Ragas



- |     |      |   |
|-----|------|---|
|     | 6.3  | Yaman   |
|     | 6.4  | Bhoopali  |
|     | 6.5  | Bhimpalas   |
| 7.  | 7.1  | Gat with Dugan<br>(one)   |
|     | 7.2  | Dhun (one)  |
| 8.  | 8.1  | Tal Angas – Sam,<br>Kal, Matra,<br>Khand, Tali,<br>Laya, Avartan  |
|     | 8.2  | Raga Anga –<br>Sangeet, Swara,<br>Komal Swara,<br>Tivra Swara,<br>Raga, Saptak,<br>Thaat, Aroha,<br>Awaroha, Vadi,<br>Samvadi,<br>Anuwadi Vivadi,<br>Varja Swara,<br>Gansumay,<br>Pakad |
| 9.  | 9.1  | Jan-gan-man   |
|     | 9.2  | Vande-mataram<br>(official)   |
| 10. | 10.1 | Sargam – Any<br>one in the<br>prescribed<br>Ragas from<br>unit 5  |
|     | 10.2 | Sargam – Any<br>one in the<br>prescribed<br>Ragas from<br>unit 6  |
| 11. |      | Practical Record Book   |

## Std XII

### Introduction

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It is also possible to make use of music in co-curricular activities. Self-study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

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After completing the syllabus in 'Indian Music', the students will come to know –

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under 'Indian Music' is considered for 100 marks.

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- v) Student can choose any one practical subject from Three Practical Subjects. (Vocal Light Music-66, Vocal Classical Music-67 and Instrumental Music-68).

**Curriculum**

S.No.	Unit	Subunit
1.	Swara	1.1 Shuddha Swara. 1.2 Vikrit Swara.
2.	Alankar	Shuddha Swara's alankar based on tala
3.	Theory of Ragas	3.1 Kedar 3.2 Bhairav 3.3 Jounpuri 3.4 Bageshree 3.5 Shankara 3.6 Tilak-Kamod 3.7 Deshkar 3.8 Malkauns 3.9 Vrindavani Sarang
4.	Theory & demonstration of Talas	4.1 All talas prescribed for Std.XI



- |    |     |   |     |                                 |           |   |
|----|-----|---|-----|---------------------------------|-----------|---|
|    | 4.2 | Zumra   |     | 6.4                             | Bageshree |   |
|    | 4.3 | Tilwada                                       | 7.  | Spetic Forms                    | 7.1       | Gat with Dugun & Chaugun                          |
|    | 4.4 | Addha   |     | Presentation                    |           |   |
|    | 4.5 | Roopak  |     |                                 | 7.2       | Dhun  |
| 5. |     | Rajakhani Gat (Any two) with 2 alap & 2 taans | 8.  | Definitions : (Technical Terms) | 8.1       | All terms prescribed for Std.XI                   |
|    | 5.1 | Shankara                                      |     |                                 | 8.2       | Alap, Taan, Meend, Kan, Murki                     |
|    | 5.2 | Tilak kamod                                   |     |                                 |           |   |
|    | 5.3 | Deshkar                                       |     |                                 |           |   |
|    | 5.4 | Malkauns                                      | 9.  | Notation Writing                | 9.1       | Notation wirting at one Rajakhani Gat from Unit 5 |
|    | 5.5 | Vrindawani Sarang                             |     |                                 | 9.2       | Notation writing of one Rajakhani Gat from Unit 6 |
| 6. |     | Masidkhani Gat (Any Two)                      |     |                                 |           |   |
|    | 6.1 | Kedar   | 10. | (Practical)                     |           |   |
|    | 6.2 | Bhairav                                       |     | Record - book                   |           |   |
|    | 6.3 | Jounpuri                                      |     |                                 |           |   |



## Percussion Instruments (69)

### Std. XI

#### Introduction

In the subject music, the Percussion Instruments (Talvadya) has been given a very significant role in National and State Boards Art Education Curriculum. Since Art Education has a lot of scope to develop to develop the creativity of the students, the curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why the subject 'Talvadya' has been given significance in the curriculum.

While restructuring the curriculum, the students have been given the opportunities, as per their age and interest. And due to that his ability to express and stage daring would develop surely. The student would gain pleasure after the study of each unit. They would do introduction. In this way only they would become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in the co-curricular activities. Self study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

#### Instructional Objectives

After completing the syllabus in 'Indian Music' the students would be able to get the information regarding Talvadya (Theory & Practical) to. After Studying this subject the students will be able to-

1. Study about different schools of Tabla (Gharanas), the study and analysis of their tradition and of the characteristics of playing tabla.

2. Study about the biographical sketches of Percussion Masters along with their Riyaz and style of playing etc.
  3. Explain the importance of 'Laya' in music and learn it too as when we talk of Music, Laya and Layakari naturally comes with it.
  4. Tell the definition and explanation of different styles in Talvadya playing.
  5. Do the classification of different Percussion instruments.
  6. Get the basic knowledge or basic introduction about how to give sequential solo performance.
  7. Information regarding writing notation in music and the process of 'PADHANT'
  8. Encourage students for accompaniment alongwith various vocal music styles.
- For Teaching Percussion Instruments (Sub-69) The maximum number of students in one batch should be Twenty only.

### Std. XI

#### Theory

#### Sr.No. Unit Sub - unit

- |    |   |     |                             |
|----|---|-----|-----------------------------|
| 1. | Rhythm (Laya) and Music                     | 1.1 | Definition of Laya (Rhythm) |
|    |   | 1.2 | Importance of Laya in music |
| 2. | Introduction of Indian Rythmic Instrument   | 2.1 | Pakhawaj                    |
|    |   | 2.2 | Dholki                      |
|    |   | 2.3 | Sambal                      |
| 3. | Introduction of Western Rythmic Instruments | 3.1 | Kongo                       |
|    |   | 3.2 | Bongo                       |



			<b>Practical</b>		
			<b>S.No.</b>	<b>Unit</b>	<b>Subunit</b>
4.	Anatomy of Tabla	Various parts of Tabla Dugga	1.	Tal Notation Writing (only single laya)	1.1 Dadra 1.2 Keharwa 1.3 Rupak 1.4 Trital 1.5 Zaptal 1.6 Ektal 1.7 Tevara 1.8 Bhajani
5.	Alphabets, Script and Language of Tabla	5.1 Various sounds produced on the different parts of Tabla Dugga 5.2 Sound produced in multiple combinations of Tabla Dugga.	2.	Presentation	2.1 Various Bol playing on Tabla and Dugga 2.2 Playing talas given in unit – 1 and oral presentation 2.3 Kayda, Tihai, Mukhada, Laggi
6.	Matrices of Tala	6.1 Definition 6.2 Analysis of Talas 6.3 Notation Writing	3.	Tabla Solo	3.1 Trital 3.2 Zaptal
7.	Definitions of the following Terms with illustrations	7.1 Kayda 7.2 Rela 7.3 Tihai 7.4 Mukhada	4.	Various Rhythmic Instrument Solo	4.1 Pakhawaj 4.2 Dholki 4.3 Kongo 4.4 Bongo 4.5 Sambal
8.	Schools Tabla (Gharanas) short history and peculiarities	8.1 Delhi 8.2 Lakhnow 8.3 Farukhabad			

## Std. XII

### Introduction

In the subject music, the Percussion Instruments (Talvadya) has been given a very significant role in National and State Boards Art Education Curriculum. Since Art Education has a lot of scope to develop to develop the creativity of the students, the curriculum of music would definitely help in developing the hidden qualities of the students.

Human life gets enriched due to Art that's why the subject 'Talvadya' has been given significance in the curriculum.

While restructuring the curriculum, the students have been given the opportunities, as per their age and interest. And due to that his ability to express and stage daring would develop surely. The student would gain pleasure after the study of each unit. They would do introduction. In this way only they would



become professionals like artists, teachers, accompanists etc.

It is also possible to make use of music in the co-curricular activities. Self study has a great importance in music and thus the curriculum also aims to inculcate the value and importance of 'RIYAZ' in the students.

### Instructional Objectives

After completing the syllabus in 'Indian Music' the students would be able to get the information regarding Talvadya (Theory & Practical) to. After Studying this subject the students will be able to-

1. Study about different schools of Tabla (Gharanas), the study and analysis of their tradition and of the characteristics of playing tabla.
2. Study about the biographical sketches of Percussion Masters along with their Riyaz and style of playing etc.
3. Explain the importance of 'Laya' in music and learn it too as when we talk of Music, Laya and Layakari naturally comes with it.
4. Tell the definition and explanation of different styles in Talvadya playing.
5. Do the classification of different Percussion instruments.
6. Get the basic knowledge or basic introduction about how to give sequential solo performance.
7. Information regarding writing notation in music and the process of 'PADHANT'
8. Encourage students for accompaniment alongwith various vocal music styles.

## Std. XII

### Theory

Sr.No.	Unit	Sub - unit
1.	Schools Tabla (Gharanas)	1.1 Ajarada
		1.2 Banaras
		1.3 Punjab
2.	Biographical sketches and contributions of the following Percussionist Masters.	2.1 Ustad Zakir hussain
		2.2 Pt. Anindo Chatterji
		2.3 Pt. Bhawani-shankar (Pakhawaj)
3.	Laya and Typs of Laya	3.1 Vilambit Laya
		3.2 Madhya Laya
		3.3 Drut Laya
4.	Details study of Rhythmic Instrument	4.1 Pakhawaj
		4.2 Dholki
		4.3 Dholak
		4.4 Drumset
		4.5 Rhythms Macchine
5.	Study of the following Terms with illustrations	5.1 Damdar Tihai
		5.2 Bedam Tihai
		5.3 Mohara
		5.4 Tukada
		5.5 Paran
		5.6 Laggi
6.	Utility of various Rhythmic Instruments	6.1 Classical music
		6.2 Semi classical music
		6.3 Light music
		6.4 Folk music
		6.5 Western music
7.	Solo recital	—
8.	Information about Talas and their	8.1 Dadra
		8.2 Keharwa
		8.3 Rupak



Notation writing	8.4	Zaptal
	8.5	Trital
	8.6	Ektal
	8.7	Tevara
	8.8	Chowtal

Laggi, Paran,  
etc. Forms of  
presentation.

2.2 11th Std. of all  
Talas information  
and presentation.

2.3 11th Std. of all  
Talas by showing  
Tali and Khali on  
hand.

### Practical (XII)

#### Sr.No.Unit

#### Sub-Unit

1.	Write Notation of following Terms in the given talas. One Kkayda and one Chakradar	1.1 Trital 1.2 Zaptal	3. Accompaniment —
2.	Presentation	2.1 Kayda, Mohara, Tukada, Chakradar,	4. Solo recital with Lehara accompaniment. 5. Various Rhythmic Instrument solo
			4.1 Trital 4.2 Zaptal 5.1 Pakhawaj 5.2 Dholki 5.3 Kongo 5.4 Drumset
			6. Practical Record Book —



## Agriculture Science and Technology (75)

### Introduction

Agriculture is the back bone of countries development, as more than 65 % Indian population living in the rural area is mainly dependant on agriculture and the related fields. Hence, development of agriculture is the only way to improve the economic status of the rural population. Besides, agriculture has the potential to nourish the ever increasing population provided the productivity and production of the various crops is increased substantially.

It is the need of the hour to strengthen agricultural education and extension activity for the benefit of the farming community through the inclusion of agriculture subjects to the 10 + 2 students or technicians. As majority of the school going children belong to villages, they are expected to acquire knowledge of improved techniques in agriculture easily.

### Objectives

To enable the students to

1. acquire knowledge of different soil forming rocks and soil formation procedure.
2. know the properties of soil, soil types and soil management practices.
3. understand different agricultural practices for maintenance of soil fertility and productivity.
4. understand different factors of crop production.
5. know the use of farm waste for soil improvement.
6. study the dry land farming and watershed management.
7. understand the cultivation of important field crops, fruits, vegetables and floriculture crops.
8. know the improved technology like hybridization, tissue culture, polyhouse, farm mechanization etc.
9. study climate in relation to plant growth.
10. acquire knowledge about weed, pest and disease management.
11. develop the skill in using various agricultural appliances.
12. study management practices for sustainable agriculture.
13. develop the habits of working in field conditions.
14. know the extension teaching methods and aids.
15. appreciate and honour the work of farming community.

### Std. XI : Theory

1. **Introduction to Agronomy and Crop Production**
  - 1.1 Agronomy
  - 1.2 Crop production
2. **Rocks and minerals**
  - 2.1 Meaning of rock
  - 2.2 Types of rocks
  - 2.3 Study of minerals
  - 2.4 Weathering of rocks
3. **Soil**
  - 3.1 Meaning
  - 3.2 Functions
  - 3.3 Soil formation
  - 3.4 Properties of soil
  - 3.5 Soil fertility and productivity



- 3.6 Soils of Maharashtra
4. **Weather and climate**
- 4.1 Different weather elements
- 4.2 Instruments of measurement
- 4.3 Weather forecasting
5. **Plant morphology and physiology**
- 5.1 Study of different plant parts viz. root, stem, leaf and flower
- 5.2 Plant physiology
6. **Tillage and farm operations**
- 6.1 Definition
- 6.2 Objectives
- 6.3 Types
- 6.4 Tillage implements
- 6.5 Modern concepts
- 6.6 Farm operations
7. **Seed and sowing**
- 7.1 Meaning
- 7.2 Difference between seed and grain
- 7.3 Characteristics of seed
- 7.4 Parts of seed
- 7.5 Seed technology
- 7.6 Seed multiplication
- 7.7 Seed treatment
- 7.8 Sowing methods
- 7.9 Sowing time, depth and spacing
8. **Seed testing**
- 8.1 Objectives
- 8.2 International Seed Testing Association
- 8.3 Seed germination
- 8.4 Seed dormancy
- 8.5 Different seed tests
9. **Plant protection**
- 9.1 Pest and diseases
- 9.2 Control methods
- 9.3 Integrated pest management
- 9.4 Integrated disease management
- 9.5 Study of important pests
- 9.6 Study of important diseases
10. **Weed management**
- 10.1 Meaning
- 10.2 Characteristics
- 10.3 Classification
- 10.4 Effects of weeds
- 10.5 Dispersal of weeds
- 10.6 Weed control
11. **Crop rotation and cropping scheme**
- 11.1 Crop rotation
- 11.2 Cropping scheme
12. **Dryland agriculture**
- 12.1 Meaning and classification
- 12.2 Characteristics of dry land agriculture
- 12.3 Water shed management
- 12.4 Water harvesting
- 12.5 Contingency planning
- 12.6 Sustainable agriculture
13. **Study of different crops**
- 13.1 Cereals and pulses: Jowar and bajra, gram and red gram
- 13.2 Importance of vegetables
- 13.3 Classification of vegetables
- 13.4 Study of vegetables – potato, brinjal, chilli, okra, cabbage, onion, spinach and cucumber
14. **Agricultural economics**
- 14.1 Introduction to basic concepts
- 14.2 Agricultural costing
- 14.3 Cost of cultivation
- 14.4 World Trade Organization (WTO)
- 14.5 Awareness in purchasing agricultural inputs.
- Practicals**
- Std. XI**
1. Identification of important rocks.
  2. Identification of seeds of different crops, manures and fertilizers.
  3. Study of soil profile and different types of



- soils.
4. Handling and use of different tillage implements and plant protection equipments.
  5. Seed treatment for the crops included in the syllabus.
  6. Study of meteorological equipments.
  7. Visit to a meteorological observatory.
  8. Study of different types of weeds and herbicides.
  9. Practice of seed bed preparation.
  10. Determination of physical purity of seed.
  11. Visit to a seed processing plant and seed testing laboratory.
  12. Methods of sowing for different crops.
  13. Collection and preparation of soil sample for analysis.
  14. Visit to a soil testing laboratory.
  15. Demonstration of spraying of insecticides, pesticides and herbicides.
  16. Study of cropping schemes.

### **Project work**

**Note :** Students may be given choice to do any one of the project work listed below.

1. Collection of weeds and preparing an album with brief information.
2. Collection of seeds and preparing an album with brief information.
3. Collection of samples of different soils with brief information.
4. Preparation of any one model of tillage implements.

### **Std. XII : Theory**

#### **1. Plant nutrition**

- 1.1 Essential elements
- 1.2 Classification
- 1.3 Functions
- 1.4 Deficiency symptoms

- 1.5 Integrated nutrient management
2. **Manures and fertilizers**
  - 2.1 Meaning
  - 2.2 Classification
  - 2.3 Study of organic manures
  - 2.4 Green manuring
  - 2.5 Vermicompost
  - 2.6 Bio-fertilizers
  - 2.7 Organic farming
  - 2.8 Chemical fertilizers
  - 2.9 Time and methods of application
3. **Irrigation and drainage**
  - 3.1 Meaning of irrigation
  - 3.2 Advantages and adverse effects
  - 3.3 Systems of irrigation
  - 3.4 Scheduling of irrigation
  - 3.5 Meaning of drainage
  - 3.6 Importance of drainage
  - 3.7 Causes of improper drainage and remedies
4. **Cropping systems**
  - 4.1 Meaning
  - 4.2 Study of different cropping systems
5. **Plant breeding**
  - 5.1 Introduction to plant breeding
  - 5.2 Objectives
  - 5.3 Activities in plant breeding
  - 5.4 Modes of reproduction
6. **Seed production technology**
  - 6.1 Principles of seed production
  - 6.2 Seed act
  - 6.3 Hybrid seed production of jowar
  - 6.4 Hybrid seed production of cotton
7. **Study of field crops**
  - 7.1 Cash crops : Cotton and sugarcane
  - 7.2 Cereals and oilseeds : Paddy, wheat, soybean and groundnut
  - 7.3 Fodder crops : Lucerne, berseem, jowar, maize



## 8. Fundamentals of horticulture

- 8.1 Scope, importance and limitations of fruit growing in India
- 8.2 Importance of fruits in human diet
- 8.3 Planning of fruit orchard
- 8.4 Special horticultural practices

## 9. Cultivation of horticultural crops

- 9.1 Cultivation of fruit crops : Mango, grape, banana, santra, pomegranate
- 9.2 Cultivation of fruit crops (in brief) : Ber, guava, custard apple, chikoo, coconut, cashewnut and papaya
- 9.3 Cultivation of flower crops : Rose, tuberose, marigold, chrysanthemum

## 10. Fruit preservation

- 10.1 Principles
- 10.2 Methods of preservation
- 10.3 Preparation of preserved products viz. jam, jelly and pickles.

## 11. Advanced technologies in agriculture

- 11.1 Scope and importance of bio-technology
- 11.2 Plant tissue culture
- 11.3 Genetic manipulation technique
- 11.4 Polyhouse culture
- 11.5 Farm mechanization

## 12. Agricultural extension

- 12.1 Meaning
- 12.2 Objectives
- 12.3 Formal and extension education
- 12.4 Extension teaching methods
- 12.5 Teaching aids
- 12.6 New communication technologies

## Practicals : Std. XII

1. Study of various systems of irrigation.
2. Study of calculation of theoretical seedrate required for different crops.
3. Calculations regarding plant population.
4. Study of calculation of doses of fertilizers for different crops.
5. Raising of seedlings of flowers and fruits.
6. Practice of filling containers for pot culture.
7. Preparation of crop-cafeteria and practice of sowing, planting, transplanting, interculturing and harvesting.
8. Practice of training and pruning.
9. Study of asexual methods of propagation viz. cutting, layering, budding and grafting.
10. Study of methods of fertilizer application.
11. Seedbed preparation for different crops included in syllabus.
12. Visit to a tissue culture laboratory.
13. Visit to a nursery and polyhouse.
14. Emasculation and pollination in cotton.
15. Preparation of extension teaching aids.

## Project work

**Note :** Students may be given choice to do any one of the project work listed below.

1. Collection of manure and fertilizer samples and preparing an album with brief description.
2. Collection of pest samples along with brief information regarding its name, nature of damage and control measures.
3. Collection of disease samples along with brief information regarding its name, symptoms and control measures.
4. Collection of samples regarding visual aids used in extension teaching.



## Animal Science and Technology (76)

### Introduction

About 70 per cent of the Indian population is dependent on agriculture for their livelihood. Livestock constitute an important component of the agriculture and about 80 per cent of livestock is held by the small and marginal farmers. The per cent contribution of the livestock to the national economy is about 6 % of GDP.

Production and use of animal products in the human diet is receiving tremendous attention in the recent times and the need for developing modern livestock management is recognized very well. The other objectives are to provide animal power for farming and transportation and utilize agro industrial by-products for converting these into valuable animal products and also for the creation of numerous employment opportunities throughout the year. The major improvement in animal productivity will take place through new approach of biotechnology in the field of nutrition, breeding and management.

Considering the existing educational status at the higher secondary level it is obvious that the Animal Science course would provide strong backup for self and wage employment opportunities to the students in future.

### Objectives

#### To enable the students to

1. acquire the knowledge of the habitat, general characteristics and economic utility of various breeds of cattle, buffalo, sheep, goat, poultry, pigs and dogs.
2. study anatomy and physiology of livestock and poultry.
3. understand feeding and management practices of various categories of dairy animals.
4. study various practices involved poultry keeping viz. housing, feeding, health coverage and marketing.
5. impart knowledge about sheep, goat and pig farming.
6. know housing, feeding and management practices of pups, bitches and dogs.
7. train the students in livestock management, forage production and health control measures.
8. study the various diseases of livestock and poultry including their control measures.
9. develop young entrepreneurs for self employment through livestock farming.
10. have information about role of livestock products viz. milk, meat, mutton, pork and eggs in human nutrition.

### Std. XI : Theory

#### 1. Introduction to Animal Husbandry

- 1.1 Present position of Livestock and Poultry in India and World
- 1.2 Scope and limitations for Livestock and Poultry farming in India
- 1.3 Nutritive value of animal products
- 1.4 Integrated livestock farming
- 1.5 Common terms used in Animal Husbandry

#### 2. Cattle breeds

- 2.1 Classification of cattle breeds
- 2.2 Milch purpose- Sahiwal, Red Sindhi, Gir and Tharparkar



- 2.3 Dual purpose-Deoni, Ongole, Kankrej and Hariana
- 2.4 Draft purpose-Khillar, Dangi, Red Kandhari and Gaolao
- 2.5 Exotic breeds - Holstein Friesian, Jersey and Brown Swiss.
- 2.6 Crossbreds of Maharashtra - Holdeo and Phule Triveni
- 3. Buffalo breeds**
- 3.1 Classification of buffalo breeds
- 3.2 Murrah, Surti, Mehsana, Jaffarabadi, Nagpuri, Pandharpuri, Marathwadi
- 4. Sheep and Goat breeds**
- 4.1 Classification of sheep breeds
- 4.2 Sheep breeds: Indian (Deccani, Bannur) and Extotic (Merino, Rambouillet and Southdown) breeds.
- 4.3 Classification of goat breeds
- 4.4 Goat breeds: Indian breeds (Osmanabadi, Sangamneri, Jamunapari, Black Bengal, Barberi and Pashmina) and extotic breeds (Saanen, Alpine)
- 5. Pig and Dog breeds**
- 5.1 Classification of pig breeds
- 5.2 Pig breeds: Indian (Deshi breed) and exotic (White Yorkshire, Landrace) breeds.
- 5.3 Classification of dog breeds
- 5.4 Dog breeds: Pomeranian, German shepherd, Doberman and Labrador
- 6. Poultry breeds**
- 6.1 Classification of poultry breeds
- 6.2 Indian breeds : Aseel and Kadaknath
- 6.3 Exotic breeds : White Leg Horn and Rhode Island Red
- 6.4 Commercial strains
- 7. Animal breeding and selection**
- 7.1 Systems of breeding: Inbreeding and Outbreeding
- 7.2 Basis of selection: Individual, pedigree and progeny testing.
- 7.3 Methods of selection: Tandem, Independent culling and Selection Index Method
- 7.4 Conservation of local germplasm
- 8. Skeletal system**
- 8.1 Bones
- 8.2 Skeleton
- 8.3 Joints
- 9. Circulatory System**
- 9.1 Heart
- 9.2 Blood vessels
- 9.3 Blood
- 9.4 Blood circulation
- 9.5 Lymphatic system
- 10. Respiratory System**
- 10.1 Respiratory organs
- 10.2 Mechanism of respiration
- 11. Urinary System**
- 11.1 Organs of urinary system
- 11.2 Structure of nephron
- 11.3 Urine formation
- 12. Digestive System**
- 12.1 Organs of alimentary canal of ruminants
- 12.2 Accessory glands
- 12.3 Ruminant digestion
- 13. Reproductive System**
- 13.1 Male reproductive system
- 13.2 Female reproductive system
- 13.3 Oestrous cycle
- 13.4 Fertilization
- 13.5 Pregnancy
- 13.6 Parturition
- 13.7 Udder



#### 14. Nervous system, endocrine glands and sense organs

- 14.1 Central Nervous system
- 14.2 Endocrine glands
- 14.3 Sense organs: Eye, ear and skin

#### 15. Poultry anatomy and Physiology

- 15.1 Skeletal system
- 15.2 Digestive system
- 15.3 Respiratory system
- 15.4 Reproductive system
- 15.5 Endocrine glands

#### 16. Artificial Insemination

- 16.1 Definition, advantages and disadvantages
- 16.2 Semen collection
- 16.3 Semen composition and properties
- 16.4 Semen preservation
- 16.5 Insemination
- 16.6 Embryo transfer technology
- 16.7 Cloning technique

#### 17. Milk

- 17.1 Composition of milk
- 17.2 Properties of milk
- 17.3 Preservation of milk
- 17.4 Marketing of milk
- 17.5 Adulteration of milk

#### 18. Forage production

- 18.1 Forage production in India
- 18.2 Cultivation practices of common fodder crops viz. Maize, Jawar, cowpea, Lucerne, Berseem, Gajraj, Subabhul

#### Practicals (XI)

1. Nomenclature of external body parts of livestock and poultry.
2. Demonstration of morphological features of various breeds of cattle.
3. Demonstration of morphological features of various breeds of buffalo.

4. Demonstration of morphological features of various breeds of sheep and goat.
5. Demonstration of morphological features of various breeds of dog and pig.
6. Demonstration of morphological features of various breeds of poultry.
7. Demonstration of age of livestock by dentition and horn ring method.
8. Demonstration of weight of animals by measurement.
9. Preparation of animals for show and judging of animals.
10. Handling and casting of animals.
11. Study of various body systems of ruminants.
12. Signs and detection of heat in animals.
13. Study of methods of pregnancy diagnosis.
14. Signs and stages of parturition.
15. Demonstration of internal organs of poultry and structure of an egg.
16. Study of equipments required for collection of semen
17. Analysis of milk for fat and specific gravity.
18. Identification of commonly used fodder crops.
19. Visit to local veterinary dispensary to demonstrate A.I. technique.
20. Visit to dairy plant and slaughter house

#### Project Work (XI)

1. Collect the information of Cattle/ Buffalo/ Sheep/ Goat/ Pig/ Dog /Poultry breeds in the surrounding area.
2. Visit and observe nearest Artificial Insemination (A.I.) Centre.
3. Visit and study co-operative milk sangh/ Government milk scheme.
4. Collect the specimens of common fodder crops.



**Note :** Teacher can allot any one above project work.

## **Std. XII**

- 1. Feed nutrients**
  - 1.1 Water
  - 1.2 Protein
  - 1.3 Carbohydrates
  - 1.4 Lipids
  - 1.5 Vitamins
  - 1.6 Minerals
- 2. Feeds and Feeding**
  - 2.1 Classification of feedstuffs
  - 2.2 Unconventional feedstuffs
  - 2.3 Preservation of forages
  - 2.4 Anti-nutritional/harmful constituents
  - 2.5 Processing of feedstuffs
  - 2.6 Feeding standards
  - 2.7 Ration
  - 2.8 Thumb rule for cattle feeding
  - 2.9 Watering of animals
- 3. Routine management practices**
  - 3.1 Identification of animals
  - 3.2 Dehorning
  - 3.3 Castration
  - 3.4 Grooming
  - 3.5 Milking
  - 3.6 Drying off
  - 3.7 Culling
  - 3.8 Hoof trimming
  - 3.9 Ringing of bulls
  - 3.10 Deworming
  - 3.11 Spraying and dipping
  - 3.12 Vaccination
  - 3.13 Record keeping
  - 3.14 Carcass disposal
- 4. Housing of dairy animals**
  - 4.1 Objectives of housing
  - 4.2 Selection of site
  - 4.3 Systems of housing
  - 4.4 Components of the farm buildings
- 5. Dairy cattle and Buffalo management**
  - 5.1 Raising of calves
  - 5.2 Raising of heifers
  - 5.3 Care and management of pregnant animals
  - 5.4 Care and management of freshly calved animals
  - 5.5 Care and management of lactating animals
  - 5.6 Care and management of breeding bull
- 6. Goat Management**
  - 6.1 Importance of goat farming
  - 6.2 Housing
  - 6.3 Management of kids
  - 6.4 Management of pregnant and lactating does
  - 6.5 Management of breeding bucks
- 7. Sheep Management**
  - 7.1 Importance of sheep farming
  - 7.2 Housing
  - 7.3 Management of lambs
  - 7.4 Management of pregnant and lactating ewes.
  - 7.5 Management of breeding rams.
- 8. Poultry housing and equipments**
  - 8.1 Principles of housing
  - 8.2 Construction of house
  - 8.3 Systems of poultry keeping
  - 8.4 Equipments
- 9. Poultry nutrition**
  - 9.1 Principles of poultry feeding
  - 9.2 Classification of poultry feed ingredients.



- 9.3 Balanced ration for poultry
- 9.4 Methods of feeding for chicks, broilers and layers
- 10. Poultry Management**
- 10.1 Hatchery Management
- 10.2 Rearing of chicks
- 10.3 Layer management
- 10.4 Broiler management
- 10.5 Marketing of poultry products
- 11. Pig Management**
- 11.1 Importance of pig farming
- 11.2 Management of piglets
- 11.3 Management of lactating and pregnant sows
- 11.4 Management of boars
- 12. Dog Management**
- 12.1 Importance of dogs
- 12.2 Management of pups
- 12.3 Management of lactating and pregnant bitches
- 12.4 Management of male dogs
- 13. Diseases of livestock**
- 13.1 Introduction to diseases
- 13.2 Bacterial diseases : Anthrax, H.S., B.Q., Brucellosis, Enterotoxaemia, Mastitis
- 13.3 Viral diseases : Foot and mouth disease, Ephemeral fever, PPR (Peste des petits Ruminants), Blue tongue, Sheep and goat pox, Rabies
- 13.4 Protozoan diseases : Theileriosis, Surra and Babesiosis
- 13.5 Parasitic diseases : Endoparasites and Ectoparasites
- 13.6 Systemic diseases : Simple indigestion, Tympany, Diarrhoea, Pneumonia, Anaemia
- 13.7 Reproductive disorders : Dystokia, Retention of placenta, Metritis, Prolapse of uterus, Infertility
- 13.8 Metabolic diseases : Milk fever, Ketosis
- 13.9 Contingency planning for livestock
- 14. Poultry diseases**
- 14.1 Bacterial diseases : Bacillary white diarrhoea, Colibacillosis, Chronic respiratory disease (C.R.D.)
- 14.2 Viral diseases : Ranikhet disease, Gumboro disease, Marek's disease, Fowl pox, Bird flu
- 14.3 Fungal diseases : Aflatoxicosis, Aspergillosis
- 14.4 Parasitic diseases : Coccidiosis, Ectoparasites and endoparasites
- 14.5 Nutritional diseases : Vitamins and mineral deficiencies
- Practicals (XII)**
1. Study and identification of commonly used conventional and non-conventional feedstuffs.
  2. Method for silage and hay making.
  3. Feeding schedules for different classes of livestock.
  4. Computation of ration of various classes of livestock as per ISI standards and feed formulation by using computer.
  5. Demonstration of chaffing and urea-molasses treatment.
  6. Study of housing systems for livestock.
  7. Identification marks for livestock.
  8. Demonstration of dehorning and castration.
  9. Routine management practices viz. grooming, washing, clipping and spraying.
  10. Milking of animals.
  11. Maintenance of various farm, breeding and health record by using computers.
  12. Study of poultry housing.



13. Study of equipments required for poultry farming.
14. Computation of ration for chicks, broilers and layers as per ISI standards.
15. Grading of eggs.
16. Recording of temperature, pulse and respiration.
17. Identification and uses of commonly used medicines and instruments in animal treatment.
18. Demonstration of various methods of administration of drugs.
19. First-aid for bleeding, wound, tympany, diarrhoea and indigestion.
20. Visit to various livestock , poultry and pig farms.

### **Project Work (XII)**

1. Practice of routine management practices of cattle/ Buffalo.
  2. Visit and study cattle / buffalo scientific byre.
  3. Visit, observe and practice scientific milking method.
  4. Vaccinations against Ranikhet disease to deshi birds in villages.
  5. Observe feeding pattern and prepare feeding schedules for cattle / buffalo.
- Note : Teacher can allot any one above project work.

### **List of Equipments / Materials**

1. A.I equipments – Artificial vagina, latex cone, latex liner, glass tube.
2. Dairy equipments – Lactometer, Butyrometer, Gerber’s centrifugal machine.
3. Poultry equipments – waterers, feeders, nests, roosts, egg cages and trays, brooder, egg incubator.
4. Veterinary instruments – Drenching bottle, feeding cup, enema pot, irrigator, infusion set, syringe, trocar and canula, pestle mortar, milk siphon, scalpel, scissor, artery forcep, tissue forcep, Burdizzo’s castrator, automatic vaccinator, strip cup, plastic paddle.
5. Dairy farm equipments – Hot and cold branding sets, ear tags (metal and plastic), tattooing set, dehorning saw, electric dehorner, spray pump, bull holder, bull nose punch, bullnose ring, hoof trimmer, curry comb, body brush, feeding pail, wool shearer.
6. Feed processing equipments – Chaff cutter, hammer mill.
7. Computer.
8. Models of livestock breeds and body systems, laboratory model for silage making.
9. Laminated photographs of livestock breeds.
10. Charts of body systems, external body parts of livestock and poultry, structure of egg.
11. Drug museum of commonly used drugs in animal treatment.
12. Museum of commonly used feedstuffs in livestock production.



## Defence Studies (77)

### Introduction

India has emerged as a global leader and a strong nation at the turn of 21<sup>st</sup> century. Education is the key to the task of nation building as well as to provide requisite knowledge and skill for sustained growth of economy and to ensure overall progress. India is a nation of young people, working age population. This young population is an invaluable asset of our nation. This population should be equipped with requisite knowledge and skill of defence and security along with the knowledge of social and industrial development so that they can contribute to the defence and development of our nation as well as to defend International human rights.

The concept of the discipline “Defence Studies” recognises the role of the education of this discipline in installing the values of secularism, respect for democratic traditions and civil liberties and quest for justice. It aims at creating citizens equipped with necessary knowledge, skill and values to build an inclusive, just, progressive and defensive society. The strength of National defence depends upon the Armed forces, their tradition, honesty, morale, uniform, weapons, equipments, training, logistic support and military leadership. Following are the objectives of this syllabus.

### Objectives

- 1) To acquaint the students with the Defence, Scope of Defence and Principles of National Defence.
- 2) To inculcate the origin and evolution of Indian Armed Forces, their weapons, uniforms and organisations from 1748 to 1947.
- 3) To understand the contribution of Indian soldiers in various Battles, campaigns and wars under British rule.
- 4) To inculcate the valour of Indian soldiers, through the study of various Battles, campaigns and the Role played in I & II world war as well as the important role of Indian leaders in Indianisation of Indian Armed forces during British rule.
- 5) To enable the students to join the National Armed forces to defend Nation and human right.
- 6) To understand the defence and security problems of India.
- 7) To understand war, principles of war, Battle procedures and the organisation of our Armed forces.
- 8) To understand the defence intelligence procedure, the importance of intelligence and logistics in varied terrains for war operations.
- 9) To understand the organisation of Indian Armed Forces.



## Std. XI

- 1) Defence Introduction,
  - Introduction – Meaning and Definitions
  - Scope of Defence– Defence of Family, Defence of city, Defence of nation
- 2) **A Brief History of Indian Army (1748-1857)**
  - The protection of British Factories – Surat, Bombay ( Mumbai), Madras and Calcutta ( Kolkata). Local Guards.
  - Establishment of First Indian Battalion – 1748, Founder of First Indian Battalion. Difference between European and Indian Troops.
  - Presidential Armies- Madras Army, Bengal Army, Bombay Army.
  - System of Presidential Army – Command and Control, Organisation, Weapons.
  - Development of presidential Army- Introduction, Punjab Regiment, Ratio of British and Indian troops, Major events before the Revolt of 1857.
- 3) **Development of Indian Army (1857-1914)**
  - Revolt of 1857- Background, Military causes.
  - Consequences of Revolt – Changes in Indian Army, Organisational Changes, Recruitment policy, Political changes, The Rise of Indian Army, Reorganisation of Army.
  - Raising of Cavalry and Artillery – causes.
- 4) **The Role of Indian Army in First World War (1914-18)**
  - Major Events and Achievements of Honours and Awards- The Gallant and courage shown by Indian soldiers. The Winners of Victoria Cross.
  - Army organisation and Committee – Introduction, King's Commission for Indians (Royal Military College Sandhurst), Establishment of the Indian Military Academy.
- 5) **The progress of Indiansation and the Rising of Royal Indian Navy and Royal Indian Airforce.**
  - Modernisation of the Armed forces- Meaning of Indianisation, Views about Indiansation, Progress of Indiansation, The raise of Royal Indian Navy, The raising of Royal Indian Airforce.
  - The Chatfield committee – Recommendations of chatfield committee.
- 6) **The Role of Indian Army in Second World War. (1939 to 1945)**

**Introduction**

Expansion of Indian Army, Emergency Commission, Honours and Awards For Indians, Role of Indian Officers in the Royal Air Force.

  - Role of Indian Troops in the Battles of Malaya, and Singapore, Role of Indian Troops in Battle of Malaya, Battle of Singapore, Prisoners of War, Rise of Indian National Army, Establishment of South-East Asia Command.
  - Toronto and Gothic, Line- Role of the 8<sup>th</sup> and 10<sup>th</sup> Infantry Division, Honours and Awards.
  - Burma Operation- Role of 4<sup>th</sup>, 15<sup>th</sup>, and 33<sup>rd</sup> corps, Role of Royal Indian



AirForce, Role of Royal Indian Navy, Honours and Awards.

### 7) Tradition of Indian Army and Division of Armed Forces (1947)

- Recruitment of Army, Navy and AirForce – Pattern of Recruitment, Basic Recruitment- Technical and Non Technical Recruitment, Importance of literacy and Education, Qualities of Indian Soldiers.
- Composition of Indian Army, Navy and AirForce- Traditions, Cripps proposal, changes after World War-II, Establishment of National Government.
- Partition of India - Division of Armed Forces- Army, Navy, AirForce and others.

### 8) Avenues in Armed Forces

1. Officers –a) Army – Officers entries through- NDA and CDSE a) IMA b) OTA
  - i) Entry in to IMA -(I) Army Cadet College (ACC).
    - (II) 10+2 Army Technical Entry.
    - (III) University Entry Scheme.
    - (IV) Technical graduate course.
  - ii) Entry into OTA
    - (I) Technical graduate.
    - (II) Women's graduate.
    - (III) NCC – Special Entry.
- b) Navy – 1. NDA 2. 10+2 Technical Entry 3. CDSE 4. Naval Technical Branch 5. Naval Armament Inspection Cadre 6. Naval Women's Special Entry 7. Naval NCC (Special Entry)
- c) Air force :- 1. NDA 2. CDSE 3. University Entry Scheme

4. NCC – (Airwing – NCC-"C"- Certificate 5. Technical branch

6. Women's Special Entry 7. Short Service Commission (Male).

2. Soldiers – (A) Army – 1. Army Recruitment office 2. Zonal recruitment office 3. Branch recruitment office 4. Direct recruitment – JCOs and NCOs .
- (B) Navy – i) Naval Recruitment Establishment.
  - ii) Zonal Recruitment Office.
  - iii) Branch Recruitment Office.
  - iv) Airman Selection Centre.
- (C) Airforce – Centralised Recruitment is done "The President Central Airman Selection Board, New Delhi".

### Practical Exam Scheme

1. The said Practical examination is divided in to two sections-
  - A) Oral Examination.
  - B) Practical File.
- A) Oral Exam :- Oral exam will be based on the theory syllabus of std. XIth. Minimum three questions should be asked to the candidate. Oral exam will be of maximum 15 marks.
- B) Practical File :- It will consist the following -
  - 1) Map Indicating directions.
  - 2) Map indicating location, important from the military point of view.
  - 3) Map indicating various training institutes & recruitment centres.
  - 4) Entry into Armed Forces – Table Form.

This section carries 05 marks.

15+5=20 Marks for practical Exam



- 1) Scheme of marking
- A) Oral Exam :- Minimum three questions should be asked to the candidate-
- Que. No. 1 - 4 Marks  
 Que. No. 2 - 5 Marks  
 Que. No. 3 - 6 Marks

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**Total**                      **15 Marks**

- B) Practical File
- 1) Map Indicating directions.                      - 1 Marks.
- 2) Map indicating locations.                      - 1 Marks
- 3) Map indicating training institutes & recruitment centres.                      - 1 Marks
- 4) Chart of Recruitment Procedure                      - 2 Marks

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**Total**                      **5 Marks**

- 2) Organise practical exam according to time table. Separate arrangement for practical exam should be made. At a time, only one candidate be called for practical examination. Candidate should have practical file, it should be signed by internal examiner and should be returned to the candidate. Candidate should not be allowed to appear for practical examination without practical file.
- 3) Total candidates should be divided into batches of 25 candidates in each batch. Two batches should be examined by a day. Maximum 05(Five) minits should given to each candidate for this examination.
- 4) The syllabus for a year is given in curriculum. The teacher should complete the theory & practicals accordingly

## STD- XII

### 1. Principles of National Defence

- Definition & Scope of National Defence.-
- Meaning & Determinants of Defence Policy- International Relations, Economic Development, National Personality & Traits.
- Postures of Defence Policy – Defensive posture & offensive Posture.
- Defence & Security – Meaning & Definition.

### 2. Outline of India's Defence Problems

- Objectives of National Defence - Independence & Sovereignty, Territorial Integrity, National Constitution.

#### **Internal Threats to India's Security–**

- 1) Terrorism,                      2) Naxalism,
- 3) Corruption, 4) Environmental Imbalance

#### **India's Borders**

- Land Borders—Introduction, Northern Border –Sectors & Peculiarities.
- Western Border – LOC & Indo-Pak International Border.
- Eastern border – Internal & External.
- Sea Border –Eastern Sea border and Western Sea border. Importance of Territorial Waters.
- Air Space – Meaning and Scope.

### 3. Prelude to Armed Conflict

- Introduction - Extent of Armed conflict
- Tensions Before Conflict – Nature
- Types of Tension – Propaganda Offensive, Diplomatic Offensive,



- Warlike  
 Movement - Troop movement,  
 Restraints on Transport &  
 Communication,  
 Control on Resources, Declaration  
 of Emergency.  
 \* Declaration of War,  
 \* War Mobilisation.
- 4. Acquisition of Defence Information**
- Vigilance -Nature of Vigilence.
  - Long Term Information-Sources of long term information
  - Books, Journals, Newspapers, Radio & Television, Diplomatic Corps, Delegations & study Groups, Electronic equipments, Aerial surveillance, Espionage.
  - Observation & Reconnaissance – Meaning & Difference, Principles of observation, Principles of Reconnaissance.
- 5. Intelligence**
- Intelligence –Meaning and Scope, Divisions and Types, Sources & Agencies of Battle Intelligence. principles of intelligence.
  - Processing of Intelligence - Collection & Collation, Grouping & Evaluation, Analysis, Interpretation & Assessment, Synthesis.
  - Intelligence Requirments of the field forces -Army, Navy & Airforce.
- 6. War & Principles of War**
- War - Meaning & Definition, Conventional War & Total War.
  - Principles of War - Selection & Maintenance of the Aim, Offensive Action, Concentration of force,
- Economy of force, Co-operation, Security, Surprise, Mobility, Morale, Administration.
- 7. Battle Procedures & Logistics**
- Battle Procedure -
    - 1) Appreciation of Situation.
    - 2) Operations of War
    - 3) Warfare in varied terrains.
  - Logistics – Meaning of Principles. Logistics requirements of Navy and Air Force.  
 \* Teeth and Tail Elements.
- 8. Warfare in Various Terrain**
- Warfare in Plains - Characteristics, Forces & Armaments and Logistics.
  - Warfare in Deserts - Characteristics, Forces& Armaments and Logistics.
  - Warfare in High Altitude Areas - Characteristics, Forces & Armaments and Logistics.
  - Warfare in Jungles - Characteristics, Forces & Arnaments and Logistics.
- 9. Organisation of Indian Armed forces**
- Army - Organisation of Army Headquarters and Army Commands.
  - Navy - Organisation of Naval Headquarters and Naval Commands.
  - Airforce – Organisation of Air Headquarters and Air Commands.
- 10. Para Military Forces**
- Border Security Force, Central Reserve Police Force, Rapid Action Force, Assam Rifles, Coast Guard and N.C.C.
  - Establishment, Head Quarters, Control by Ministry, Chief Officers, Duties - (Wartime, Peace Time) - Of each Services mentioned above.



## Std-XII : PRACTICAL EXAMINATION

### Instructions to the Head of Institutions

1. Please arrange for notifying the date(s), time and place for this practical Examination. There should be no doubt about it.
2. Kindly instruct the subject teacher, to be present to supervise the arrangements for this Practical Examination.
3. The teacher in the subject will not be with examiner at the time of the test unless he is appointed by the board as the internal examiner.
4. All the candidates will be seated in a room, adjacent to the rooms for the oral test. The candidates will be called serially according to the roll list.
5. No candidate should be allowed to leave the class-room till the test finishes.
6. Those who have finished the test will not be allowed to enter the classroom of the examiners for any reason.

Please ensure that all this is carried out carefully.

### Instructions to the Examiners

1. The object is test whether the candidate has read the prescribed course carefully.
2. As far as possible ask any three (3) questions from ( amongst) list of questions given in the set of question paper for this Practical Examination.
3. If the candidate fails to understand the question, another question may be asked. In no case, will he/she be asked more than 5 to 6 questions.
4. It is not necessary to allot ten minutes per candidate, if the candidate, gives correct answer he/she will take less time.
5. If necessary, give the necessary instruction to the candidates before the

commencement of the examination. Emphasise the necessity of giving brief and correct answers.

6. The Head of the Institutions should be informed well in advance for the necessary arrangements of this practical examination oral test.
7. Any thing not covered by these instructions is left entirely to discretion of the examiner appointed by the board for the oral test Practical Examination.
8. The examiners (Internal and External) must sign the record –books of the candidates. The candidates should not be examined without record-books. After the examination, the record-books should be returned to the candidates.

### Std. XII - Practical Exam Scheme

1. The said Practical exam is divided in two sections-
  - A) Oral Exam
  - B) Practical File.
    - A) Oral Exam :- Oral exam will be based on the syllabus of std. XII th. Minimum three questions should be asked to the candidate. Oral exam will have maximum 15 marks.
    - B) Practical File :- It will have two sections-
      - I) Plotting Map
      - II) Collection of applied military information. Practical File will have maximum 05 marks.



- II) Collection of applied military information.  
To collect information of any two topic from the following.
- (A) India's Land border & passes.(chart)  
(B) India's Sea border & territorial waters. (Maps)  
(C) Weapons used in various terrains.  
(D) Chart showing details about organisations of second line of defence in India.
2. Scheme of Marking
- A) Oral Exam :- Any three questions be asked to each candidate & marks should be allotted as-

Que. No. 1 -	4 Marks
Que. No.2 -	5 Marks
Que. No.3 -	6 Marks

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Total 15 Marks

- B) Practical File
- I) Map Plotting - 2 Marks  
II) Collection of Information - 3 Marks

(A+B=15+5=20)

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Total 5 Marks

3. Exam should be conducted according to the time table sent by State board. Separate arrangement be made for practical examination.
4. Internal & External Examiner must sign on practical file of each candidate.



## Education (78)

### Introduction

Maharashtra State is a leading state to introduce Education as a subject in 1994 for the first time at the higher secondary level. This subject is still not included in NCERT, ICSE and CBSE, framework, no other state has introduced this subject in their curriculum at Std. XI and Std. XII.

The subject helps to create background for the students to study the subject Education at graduate and post graduate level. Also this subject will develop interest in teaching profession for which interested students will be diverted to D.T. Ed. and B.Ed. even though students, who do not go for teaching as profession, can also have benefit, as this subject gives vision for better living and lifelong learning.

The Syllabus includes in its content meaning, types, aims, and four pillars of education, History of education, Education in Maharashtra after independence. It also includes Contribution of various educational thinkers and workers in Maharashtra and India. Current trends such as disaster management, entrepreneurship development, e-learning and virtual classroom are included. The topic library as a resource center will give insight about use of printed reference material for learning. Syllabus includes stages of development, adjustment and personality development, teaching, learning, self learning, communication and mass media and leadership development. The subject will help to better understand

values, core elements, importance of guidance and counselling and also to develop leadership qualities. The syllabus will make students active learner and will help to perform his/her active role in the learning society.

### Objectives

#### To enable the students to

1. understand meaning and types of education.
2. understand aims of education.
3. understand the history of education in different periods
4. get acquainted with present system of education in Maharashtra.
5. get acquainted with the contribution of eminent thinkers in Maharashtra and India.
6. understand role of education in development of society.
7. understand importance of values and core elements and role of education.
8. get acquainted with various current trends in education
9. understand characteristics and problems of adolescent stage.
10. understand role of guidance and counselling for adjustment and personality development.
11. understand the process of learning and self learning skills.
12. understand concept and methods of teaching.
13. understand meaning of effective communication and role of mass media.



**Std. XI**

<b>S.No.</b>	<b>Unit</b>	<b>Sub unit</b>		
1.	Education	1.1 Meaning of Education		5.2 Characteristics of Indian Society.
		1.2 Types of Education		5.3 Problems of Indian Society.
		1.3 Aims of School Education		5.4 Role of Education in the development of Society.
		1.4 Four Pillors of Education		5.5 Learning Society.
2.	History of Education	2.1 Vedic period	6. Value Education and Core elements	6.1 Concept of value education.
		2.2 Buddhist and Jainism period		6.2 Need of value education in present context.
		2.3 Islamic period		6.3 New Educational Policy (NEP) with special reference to core element.
		2.4 Pre Independence period		
3.	Education in Maharashtra after post independence period	3.1 Pattern of education	7. Current Trends in Education	7.1 Population Education
		3.2 Stages of education (I) Pre- primary education		7.2 Health Education (A) Yoga (B) Stress Management
		(II) Primary education		
		(III) Upper primary education	8. Library as a support system of education	8.1 Library services
		(IV) Secondary education and Higher Secondary education		8.2 Library as a reference centre
		(V) Higher education		
4.	Contribution of Educational Thinkers And Workers	4.1 Mahatma Jyotiba Phule		
		4.2 Maharshi Dhondo Keshav Karve		
		4.3 Karmveer Bhaurao Patil		
		4.4 Dr.Punjabrao Deshmukh		
		4.5 Anutai Wagh		
5.	Indian society And Education	5.1 Inter-relationship between Education and Society.		

**Std. XII****Objectives****To enable the students to**

1. get acquainted with contribution of eminent thinkers from India.
2. get acquainted with stages of development.
3. understand characteristics of development and problems of adolescent stage.
4. understand concept of adjustment and personality.



5. understand the role of guidance and counselling for adjustment and personality development.
6. understand the meaning and nature of learning process.
7. understand the factors affecting learning.
8. understand the types of self learning skills.
9. understand changing concept and methods of teaching.
10. understand meaning and types of communication.
11. understand role of different massmedia.
12. get acquainted with current trends in education.

**Sr.No. Unit Subunit**

1.	Educational Thinkers & workers	1.1 Ravindranath Tagore 1.2 Swami Vivekanand 1.3 Mahatma Gandhi 1.4 Dr.S.Radhakrishnan 1.5 Dr.Babasaheb Ambedkar	7.	Communication and Mass Media	7.1 Meaning of communication 7.2 Types of communication 7.3 Importance of communication 7.4 Effective communication skills 7.5 Mass Media –
2.	Stages of Development	Stages of development with special reference to characteristics & problems of adolescence	8.	Current trends in Education	8.1 Women's Education 8.2 Vocational education 8.3 Peace Education 8.4 Virtual classroom 8.5 E-learning 8.6 Entrepreneurship education 8.7 Disaster – management
3.	Adjustment and Personality development.	3.1 Concept of adjustment & personality 3.2 Development of Personality 3.3 Guidance and counselling 3.4 Development of leadership			
4.	Learning	4.1 Meaning and nature of learning Process			



## Occupational Orientation (85)

### (i) Library and Information Science

#### Introduction

In the age of communication revolution, information has got prime importance. It has become an inevitable part of human life. At the same time generation of information today is at an enormous speed. To make the right information available to the user at the right time has become a challenge considering this background.

The library is the only place where information can be retrieved. To collect information to organize it, to disseminate it and to preserve it for posterity are the basic duties of library and information professionals. The students should be trained in this subject to acquire the skills to manage the vast knowledge and requirements of users. They have to master the techniques to balance the expanded knowledge and users.

So the syllabus has been framed in pursuit of the following objectives.

#### Objectives

##### To enable the students to

1. understand librarianship and library system with changing background.
2. cultivate the spirit of service with philosophy enunciated by laws of library science.
3. get familiar with the skills and techniques in librarianship.
4. become aware of library management skills.
5. develop abilities to render effective reference service.
6. seek the current developments in the field.
7. motivate the students for career development in this field.

#### Std.XI : Theory

##### 1. Library, Librarianship : Trends and Practices

- 1.1 What is library, its role in society and other branches of knowledge, Education and culture
- 1.2 Functions : Collection, organisation, dissemination and preservation of information and knowledge
- 1.3 Brief history and development : History of library and librarianship in general.
- 1.4 Types of libraries : National, Public, Academic and Special (only concept is expected)
  - 1.4.1 National
  - 1.4.2 School, College and University Library
  - 1.4.3 Special –
    - 1.4.3.1 **Userwise** – Blind, R&D, Hospital
    - 1.4.3.2 **Collectionwise** – Newspaper and Media, Manuscripts
    - 1.4.3.3 **Other** : Industrial
- 1.5 Five laws of Library Science – Enunciation and general outline only (with emphasis on philosophy and ethics of the profession)

##### 2. Library Management

- 2.1 What is management (concept only)



- 2.2 What is library management ?  
(concept only)
- 2.3 Acquisition and Book Processing :
- 2.3.1 Book Selection – Sources and Tools of Book Selection, Publisher’s catalogue, Book Reviews, Suggestions from Readers, Web based sources
- 2.3.2 Methods of Selections :
- (i) Approval  
(ii) Recommendation
- 2.3.3 Ordering
- 2.3.4 Receipts of books, Accessioning, Stamping, Labelling
- 2.3.5 Technical Processing – Classification, Cataloguing
- 2.4 Types of Reading Material – Introduction of book and non-book material
- 2.5 Record maintenance – Accession register, Bill register, File system (Vendor’s file, Currency rates file etc.)
- 2.6 Circulation – Stacking
- 2.7 Library Rules and Regulations
- 3. Technical Processing of Library Material**
- 3.1 Classification**
- 3.1.1 What is Classification? General concept, Nature and Purpose with elaborative examples in daily life
- 3.1.2 What is book classification?
- 3.1.2.1 Need
- 3.1.2.2 Special features or requirements of books classification :
- (i) General class  
(ii) Form classes  
(iii) Form divisions  
(iv) Notation  
(v) Index
- 3.1.3 Schemes of Classification
- 3.1.3.1 Dewey Decimal Classification (21st Edn.)
- 3.1.3.2 Colon Classification (General outline, Main classes only)
- 3.2 Cataloging**
- 3.2.1 Concept, need, definition, nature and purpose, importance and functions
- 3.2.2 What is library catalogue? Its necessity in the library
- 3.2.3 Various functions of the catalogue
- 3.2.4 Physical Forms (i) Book (ii) Card, their merits and demerits
- 3.2.5 Computer Aided catalogue OPAC and others (concept only)
- 3.2.6 Entries – Main and Added (Unit Entry principle)
- 3.2.6.1 What is an entry ? Need for preparing more entries for a single book
- 4. Reference Service**
- 4.1 Introduction
- What is reference service ?
- 4.1.1 Concept, definition, need and importance
- 4.1.2 Types of reference services
- 4.2 Reference book – What is reference book ? Difference between ordinary



and reference book. Reference questions : Concept only. Type of reference books. Encyclopedia – (General), Dictionary – (General), Internet based sources

4.3 What is information? (concept only)

### Practicals

- 1) **Library Classification** : (24 hours)  
200 books to be classified according to Dewey Decimal Classification & Colon Classification, Main classes only. Preparation of Book Number according to DDC
- 2) **Library Cataloguing** : (24 hours )  
40 books to be catalogued covering the following categories :
  - (i) How to read a book technically.
  - (ii) Simple book by one author, edition, title without subtitle.
  - (iii) Simple book by two authors : title, editions without subtitle.
  - (iv) Simple book by three or more than three authors: title, subtitle, editions
- 3) **Reference Service** : (6 hours)
  - (i) 50 questions based on reference sources like encyclopedias and dictionaries.
  - (ii) 10 questions/queries based on Internet, e.g. search : general search engines, online library catalogue etc.
- 4) **Library Management** : (2 hours)
  - (i) Selection of books of one subject – 15 books
  - (ii) Label writing – 15 books

### Evaluation Pattern : (Internal)

Library Cataloguing	-	40
Reference Service	-	15
<b>Total</b>		<b>100</b>

Library Classification	-	40
Library Management	-	5
<b>Average</b>		<b>10</b>

### Std.XII : Theory

#### 1. Library, Librarianship : Trends and Practices

- 1.1 Library Associations : Concept only
- 1.2 Public Library Legislation
  - (i) Its need
  - (ii) Maharashtra State Public Library Act
- 1.3 Current World Scenario
- 1.4 Use of IT in Library
- 1.5 Community Information Networks

#### 2. Library Management

- 2.1 Important records in the library : Donation Register, Withdrawal Register, Binding Register
- 2.2 Study of Circulation Section
  - (i) Registration of borrowers
  - (ii) Charging/Discharging Systems : One Card, Two Cards, Browne, Newark, Automated
- 2.3 Library Finance
  - (i) Library Committee
  - (ii) Library budget : provision in budget
    - (a) Reading material
    - (b) Furniture, equipment, staff
- 2.4 Stock verification – concept
- 2.5 Annual report – need and content

#### 3. Technical processing of library material

- 3.1 Study of Classification Scheme
  - 3.1.1 Dewey Decimal Classification

OR

 Colon Classification



**In case of DDC**

- a. Theoretical background of the scheme.
- b. Mnemonics – concept only
- c. Space, Time and Language division (detail study is not expected)
- d. Standard subdivisions
- e. Specialities of Literature, linguistics and generalia main class
- f. Book No. (Three letters of the Author's surname)

**In case of Colon Classification**

- a. Facet and their sequence, use of ACI
- b. Mnemonics – concept only
- c. Space, Time and Language division (detailed study is not expected )
- d. Chronological, Geographical and Subject device
- e. Book No. (LYV only)

3.2 Relation between classification and cataloguing  
(Symbiotic relation)

3.3 Study of Library Cataloguing

3.3.1 Entries and their arrangement

3.3.2 Kinds : Class Index Entries, Book Index Entries, Cross Reference Index entries, Analytical entries (concept only)

3.3.3 Types of catalogue :  
Classified and Dictionary

**4. Reference Service**

4.1 Maintenance of various files in Reference Section

- (i) Clippings
- (ii) Pamphlets

4.2 Acquaintance of Reference books

- (i) Year books/Annuals
- (ii) Directories
- (iii) Dictionaries in Two languages

(iv) Biographical Dictionaries

4.3 Qualities and Role of Reference Librarian

4.4 User Study – Behavioural approach

4.5 Documentation – Introduction  
(Concept only)

**5. Library Automation** – Theoretical introduction of Library Automation covering the activities of library which can be automated.

**Practicals**

**1. Library Classification :** (24 hours)

50 books to be classified covering the following :

**In case of DDC**

(i) Subject covered under the three summaries and in additions subjects from the schedule.

(ii) Subjects covered under -  
Requiring the application at the principal Form Divisions (01 to 09) and in addition, the following Form divisions, 016 Bibliography, 058 Annuals, 092 Biography.

(iii) Book number

**In case of CC**

(i) Subjects covering the main classes and in addition subjects involving the application of Five Facets i.e.PMEST :

- (a) Bibliography
- (k) Encyclopedia
- (m) Periodical
- (w) Biography
- (n) Serial or annual
- (v) History

**2. Library Cataloguing :** (24 hours)

20 Books to be catalogued covering the following categories :



- (a) Simple book by one, two and three or more collaborators.
- (b) Types of books, covered in Std.XI and published in series.
- (c) Corporate author : Two categories
- (i) Institution
- (ii) Government with department or ministry only.
- 3. Reference Service : (6 hours)**
- 25 questions based on year book, directories, dictionaries (multilingual), biographical dictionaries.
  - Maintenance of clippings, file on one subject 50 entries with simple index.
- 4. Management : (2 hours)**
- Preparation of Accession Register – 20 books

### Std.XII

#### Evaluation Pattern

Library Classification	– 40
Library Cataloguing	– 40
Reference Service	– 15
Management	– 05
Total	100

Average – Out of 10

#### Reference Books for Std.XI

1. Oxford Junior Encyclopedia
2. Marathi Vishwakosh : 16 Vols.
3. Oxford English Dictionary (Students Version)
4. Abhinav Marathi Shabdakosh : Agnihotri
5. Bharatiya Sanskriti Kosh.

#### Reference Books for Std. XII

1. Students Modern Dictionary : K.B.Dhawale
2. Hindi Marathi Shabdakosh
3. Marathi Se Hindi Shabdasangrah
4. India a Reference Annual
5. Maharashtra Varshik : Santosh Dastane
6. Bharat Varshiya Charittrakosh : Siddheshwarashastrri Chitrao
7. Railway Time-Table
8. Telephone Directory
9. Marathi Saraswat ed.by Anant Joshi
10. Marathi Grantha Suchi : S.G.Date
11. Bharateeya Samajvidnyan Kosh : Ed.S.M.Garge, 6 Vols.
12. India who's who
13. Who's who of Indian writers : Sahitya Academy.



## (ii) Stenography : English, Marathi

### Introduction

Day by day the demand for Office Secretary, Personal Secretary and Executive Secretary is increasing in commercial and business houses. So as to fulfil this need, it is necessary to produce personnel skilled with efficient typewriting and shorthand.

The present computer age has forced the introduction and use of personal computers (P.C.'s) in the office routine. The alphabetic and numerical keyboard of a computer and typewriter is one and the same. Typewriting skill will help the students to handle a computer speedily and efficiently.

At the same time the use of dictaphone has made a revolution. The knowledge of shorthand will also be helpful to the dictaphone operator. So the syllabus subject has been framed with the object of preparing the students to cater the needs of the modern commercial and business houses and industries. Emphasis is, therefore, given on the theoretical and practical aspects of typewriting and shorthand as well as so to enable the students to type the given matter speedily and accurately and display the matter in proper and attractive form, by using different technical devices. The students ought to be acquainted with all the methods of typing and working parts of the typewriter and enable them to use them effectively.

### Objectives

#### To enable the students to

1. introduce the students with the knowledge of working parts and the use of different methods and/or devices of the typewriter.

2. introduce the students with the tabulation work like charts, statements etc. in business houses.
3. introduce the students with the knowledge of proof correction symbols, abbreviations, short forms, which frequently occur in the manuscript drafts given for typewriting.
4. train the students with the speed, accuracy and neatness in typewriting and shorthand and handle the equipment in proper manner.
5. acquaint the students with the method of taking notes in shorthand and to transcribe the same with accuracy in proper form and style.

### Std.XI : Section I – Typewriting

#### Theory

1. Typewriter and its history, year of invention and name of inventor, etc.
2. Kinds of typewriters – Standard, portable, electronic and computer as a typewriter. Correct position at the typewriter.
3. Working knowledge of the following parts of the typewriter :  
Space bar, Shift key, Shift lock, Back spacer, Warning bell, Top plate, Thumb wheels, Paper bails, Paper bail rod, necessity of Ribbon indicator, Ribbon reverse lever, Margin stopper left & right, Line space lever, Paper Releaser, Carriage. Type bars, Draw band, Paper injector.
4. Names of English type faces, knowledge of keyboard, its explanation, guideline of home keys, its importance care and



maintenances of typewriter, replacement of ribbon, position of copy, rhythm, even touch spacing between paragraphs, advantages of backing sheet blind fold system, kinds of addresses, punctuation marks and spacing before and after them, Roman figures, 1 to 50 (1 to L) for English Typewriting and not for Marathi Typewriting, Proof correction symbols.

### Practicals

1. Practice of operating the 3 rows (4rows for Marathi T/W) of keyboard, excluding figures row.
2. Introduction of blind fold system. Practice of the same through exercise consisting of small and long words, sentences and paragraphs.
3. Typing of capital letters in English and half letters in Marathi
4. Punctuation marks, practice of correct typing, of address. Envelope addressing and Roman numerals (not for Marathi)
5. Typing the passage after correcting the same as per instructions shown by proof correction signs.

The speed skill expected at the end of the year is approximately @ 15 w.p.m.for English Typewriting and @ 12 w.p.m.for Marathi Typewriting.

## Section II – Shorthand

### Theory

1. Consonants, Vowels, vowel indication, difference between Chay & Ray, intervening/vowels, rules of position writing alternative forms, R & H.
2. Diphthongs, Abbreviated W. phraseography circle S & Z, strokes S &, large circle SW, SS or SZ loops ST and STR.

3. Hooks : initial and final hooks to straight and curve strokes, alternative forms of Fr, Vr, Thr, fl, vl in (Marathi टर, ठर, डर, ढर, शर, टल, ठल, डल, ढल, शल etc.).
4. Circles or loops preceding initial Hooks, circles and 3 loops to Final hooks, Shun Hook, Aspirate, Upward and downward R & L and SH.

### Practicals

#### Reading and writing

1. of grammalogues and/or shortforms.
2. of exercises given at the end of each chapter.
3. practice of taking down notes of easy passages in shorthand and reproducing them in long hand. The vocabulary of such passages will mainly and in general be limited to words appeared in the chapters prescribed. The speed skill expected at the end of the year is about 30 w.p.m. for English Shorthand and 25 w.p.m.for Marathi Shorthand.

## Std.XII : Section I – Typewriting

### Theory

1. Working (not technical and / or mechanical) of the following parts : Line-space, Scale, Roller, Typeguide, Line-gauge, Card-holder, Variable line space or plunger, Ratchet releaser, Ribbon Carrier.
2. Feed rolls : kinds of, Carriage release lever, Type Bar buffer spring, Decimal tabulator keys.
3. Knowledge of : Different carriages and working of carriages, Use of carbon papers. Use of stencil, Use of correcting fluid and whitener.
4. Layout of commercial and business letters, Leader dots, Kinds of paragraphs, care to



- be taken while handling carbon papers, Proof correction symbols. Abbreviations and shortforms, Interchange in the typewriter, Different kinds of Rollers (platen-sheets) and their uses, Catch word.
5. Kinds of duplicators and their working, Fixed tabulator system, Difference between Ratcher releaser and plunger.
  6. Method of : Ruling the statement, Typing of signs not fitted to the typewriter. Typing of fractions. Typing of inferior and superior numbers.
  7. Erasing original and carbon copies on the typewriter.
  8. Typing of date, Typing of one & zero if not fitted to the English typewriter, Grafting, Combination of characters, Half-spacing correction on the typewriter, Typing shaded or double capitals with the help of plunger, Typing spaced letters with the use of = bicolor ribbon.
3. Agenda, Notice of Meeting.
  4. Balance Sheet and statement, using the carbon papers wherever and whenever asked to use them.
  5. Typing practice of passages in manuscript. The speed skill expected at the end of the year is 30 w.p.m. in English Typewriting and 25 w.p.m.in Marathi Typewriting.

## Section II – Shorthand

### Theory

1. Compound consonants, vowel indication.
2. Halving and doubling principles, diphonic signs, Medial Semicircle.
3. Prefixes and terminations, contraction, figures.
4. Essential vowels, special contractions.

### Practicals

1. Reading and writing practice of short forms and exercises given at the end of each chapter.
2. Practice of taking down notes of easy passages of about 300 simple words and reproducing the same in long hand, either on typewriter or handwriting.

The speed expected at the end of the year should be 60 w.p.m.in English Shorthand and 50 w.p.m. in Marathi Shorthand.



## Information Technology-Science (97)

### Introduction

Government has to visualize Schools which will concentrate on a balanced development of students in intellectual, emotional and physical terms, with a view to developing a technology literate, creative, and critically thinking class of students to open the doors to the world of knowledge.

The curriculum has been devised to integrate a wide variety of knowledge, language, value elements and skills such as creative and critical thinking, personal, social, scientific, mathematical, and environmental and knowledge acquisition.

In order to execute these dreams we have to develop the relevant infrastructure. We should carry out a substantial reinvention and re-engineering of educational sector. Our existing curricula in educational institution in respect of computer courses have to be thoroughly revamped. Internet connectivity should be provided to all Schools. Recognized aided and unaided Educational Institutions should ensure that the entire student community, irrespective of subject chosen should become computer literate. IT should be the integral part of education system.

### Objectives

**The student should be able to**

1. acquire basic knowledge of Computers.
2. acquire basic knowledge of Information Technology.
3. understand E-Commerce and related concepts.
4. understand concepts in Multimedia.
5. develop capabilities to access Information using Internet.
6. learn the basic concepts of Computer Networking.
7. develop an understanding of principles based on visual environment.
8. acquire skills for creation of Basic Web Pages.
9. acquaint with basic techniques and knowledge required for computing applications.
10. get aware about cyber laws and ethics.

### Std. XI

#### 1 Introduction to Information Technology

- 1.1 Information Technology: Definition, Introduction, Information Systems, Software, Data
- 1.2 IT in Business, Industry, Home, Play, Education, Training, Science and Engineering.
- 1.3 Computers in Hiding

#### 2 Office Suite

- 2.1 Word Processor- Microsoft Word and its main features
- 2.2 Spreadsheets – Microsoft Excel and its main features
- 2.3 Presentations – Microsoft PowerPoint

#### 3 Multimedia

- 3.1 Multimedia-Definition, Communication, Components, Building Blocks, Scope, Uses, Application purposes



- 3.2 Overview of Computer Images
- 3.3 Digital Audio
- 3.4 Overview of Video
- 3.5 Flash – Overview and Introduction
- 3.6 Multimedia Design and Future Directions
- 4 Web Browsers, E-mail Clients and Messenger Utilities**
  - 4.1 Overview, Working of the Internet and WWW
  - 4.2 Role of Web Servers, Clients
  - 4.3 Web Browsers and their use, Popular Web Browsers
  - 4.4 E-Mail Servers and Protocols
  - 4.5 E-mail Clients and Web Based Mail Access using Browser
  - 4.6 Messenger Services and Clients
  - 4.7 FTP
- 5 Introduction to Networking**
  - 5.1 Communication and Network Technologies
  - 5.2 Internet, Network Communication and Protocols
  - 5.3 Transmission Media, Communication over Wires and Cables, Wireless Communication and Standards
  - 5.4 Network Architecture, Relationships and Features
  - 5.5 Cable Topologies
  - 5.6 Network Hardware
- 6 Visual Basic.net**
  - 6.1 Introduction to .NET framework
  - 6.2 Introduction to the Visual Studio/ Visual Basic IDE
  - 6.3 Console and Windows applications
  - 6.4 Introduction to Visual Basic.net Syntax
  - 6.5 Selection and Iteration Statements
- 6.6 Arrays and enumerations
- 6.7 Introduction to Windows forms, MessageBox and InputBox
- 6.8 Handling keyboard and mouse events
- 6.9 The Control Class Controls
- 6.10 Library functions
- 6.11 Simple programs based on all the above
- 7 HTML**
  - 7.1 Uses, Features, Properties and Limitations.
  - 7.2 Tags and Attributes, Basic Tags Paragraph and Heading Tags, Comments
  - 7.3 Ordered and Unordered Lists and Related Tags, Nested Lists
  - 7.4 Anchor Tag and Hyperlinks in HTML
  - 7.5 Division and Physical Style Tags, working with Fonts, font types, sizes and colours.
  - 7.6 Body background colour, text colour and hyperlink colours, Pre-formatting, Line Break, and Horizontal Rules, Displaying special characters in HTML
  - 7.7 Images in HTML, related tags and attributes, features of BMP, JPG and GIF Raster image formats.
  - 7.8 Tables in HTML and related tags.
  - 7.9 Marquee
  - 7.10 Java Applets
- 8 Introduction to JavaScript**
  - 8.1 Limitations of plain HTML
  - 8.2 Difference between Java and JavaScript, JavaScript as a scripting language
  - 8.3 JavaScript Basic Syntax
  - 8.4 Insertion of JavaScript in HTML
  - 8.5 JavaScript built-in function



- 8.6 Selection and Iteration in JavaScript.
- 8.7 Built in Object Properties and methods related to Array
- 8.8 Strings Math and Date
- 8.9 Simple HTML programs using JavaScript

### Std. XI

#### Practical List

1. Identification of Computer Systems and understanding LAB setup.
2. Exercise on Windows, Start Menu and Accessories.
3. Creating Documents, page formatting, use of fonts and colour and printing using Word
4. Mail merge and envelope printing using Word
5. Study of Spreadsheet using Excel
6. Microsoft Access: Creation of a Simple Table having at least 8 different types of fields and creation of Form to fill up data in the same.
7. Practical on simple Flash based animation
8. Study of a Web Browser for browsing different websites
9. Acquisition of e-mail ID on free web-based e-mail servers; sending and receiving emails with and without attachments.
10. Study and use of search engines and messengers.
11. Downloading and saving Web page content and images as files.
12. Simple Visual Basic. NET Program using Toolbox
13. Use of built in functions and event driven programming in Visual Basic. NET
14. Create a simple WEB page using basic

- HTML tags.
- 15. Creation of WEB page containing graphics and table.
- 16. Use of Hyperlinks on WEB pages.
- 17. Simple Practical in JavaScript using Selection Structure
- 18. Simple Practical in JavaScript using Iteration Structures
- 19. Simple exercise in JavaScript– to create an interactive Web Page using JavaScript.

### Std. XII

#### 1 Web Publishing

- 1.1 HTML Page Frames
- 1.2 Image Mapping
- 1.3 Forms and Form Objects
- 1.4 Inserting Sound and Video
- 1.5 Use of Unicode and Indian Language Fonts
- 1.6 Cross-Browser Testing
- 1.7 Introduction to CSS
- 1.8 Web Server

#### 2 Cyber Laws and Ethics

- 2.1 Moral, Ethics and Law
- 2.2 Ethics Culture and ethics for computer users, professionals and business
- 2.3 Information Service
- 2.4 Code and guidelines of ethics
- 2.5 Introduction to cyber laws and IT Act of India 2000
- 2.6 Digital Signature, Electronic Records- Attribution, acknowledgement and dispatch.
- 2.7 Ten Commandments of Computing
- 2.8 Security, Privacy and Control.
- 2.9 Intellectual Property Rights

#### 3 E-Commerce

- 3.1 Electronic Commerce-Scope, Definition



- 3.2 Trade Cycle
- 3.3 Electronic market - Usage, Advantages and Disadvantages, Future
- 3.4 Electronic Data Interchange- Definition, Benefits
- 3.5 Internet Commerce, e-Commerce in Perspective
- 3.6 EDI Security
- 4 Client Side Scripting using JavaScript**
- 4.1 Difference in Client and Server Side Scripting
- 4.2 JavaScript as universal Client Side scripting language.
- 4.3 The Document Object Model
- 4.4 JavaScript events and event handling
- 4.5 Simple JavaScript programs
- 5 ASP.NET (using Visual Basic.NET)**
- 5.1 Introduction and Use of Web Applications, introduction to .net framework
- 5.2 Introduction to ASP.net
- 5.3 Introduction to the Visual Studio 2008/2010 IDE and Source View Control Class
- 5.4 Web Server Controls
- 5.5 HTML Server Controls
- 5.6 Validation Server Controls
- 5.7 Components and Applications
- 5.8 Introduction to Applications and State Management.
- 6 Database Concepts and interaction with ASP.NET**
- 6.1 Microsoft Access Table Relationships, Queries and Query types
- 6.2 Introduction to Reports
- 6.3 Introduction to SQL and comparison with Access.
- 6.4 Introduction to data Access with ASP.NET
- 6.5 Connected Data Access and Disconnected Data Architecture, ADO.NET Objects
- 6.6 The AccessDataSource Control, its properties and use.

### Std. XII - Practical List

1. Creation of a Website
2. Creation of a Website with Frames and CSS
3. Hyperlinks on a Web Page using Client Side Image Mapping
4. Hyperlinks on a Web Page using Server Side Image Mapping
5. Use of Audio and Animation on Web Pages
6. Use of Video on Web Pages
7. Creation and Publishing a Website using FTP
8. Cross Browser Testing and Differences in Rendering
9. Creation of Webpage in Devnagri Script (Marathi or Hindi) using UNICODE. Use MS-Word with BarahaIME and Save as html
10. ASP.NET code to display a report of client IP Address, Browser etc.
11. ASP.NET code to display Server Side Time along with client-side script to display Client Side Time.
12. ASP.NET code to calculate the number of days a person has lived on basis of the Date of Birth/the number of days left before the next occurrence of select dates



13. ASP.NET code to display contents from a Text File
14. ASP.NET code to display Hit Counter/ Number of Votes cast
15. ASP.NET code that accepts data, and puts the same into a Database/ that verifies username and password from a Database
16. Creation of a database and ASP.NET code that allows a user to view relevant information from the same/ Use of database and ASP.NET code that allows a user to view as well as edit information
17. Use of Event Driven Client Side JavaScript
18. Use of JavaScript for Validation of Amount and Pin code/Telephone number
19. Use of JavaScript for Validation of Username and Password
20. Use of JavaScript for Validation of Date/ E-mail address

**Note:**

The practicals mentioned above must be strictly carried out by students as per Practical Slips prepared and printed by the Board for the Subject of Information Technology – Science. Colleges must obtain a set of the slips from the Divisional Board Office.



## Information Technology - Arts (98)

### Introduction

Government has to visualize Schools which will concentrate on a balanced development of students in intellectual, emotional and physical terms, with a view to developing a technology literate, creative, and critically thinking class of students to open the doors to the world of knowledge.

The curriculum has been devised to integrate a wide variety of knowledge, language, value elements and skills such as creative and critical thinking, personal, social, scientific, mathematical environmental and knowledge acquisition.

In order to execute these dreams we have to develop the relevant infrastructure. We should carry out a substantial reinvention and re-engineering of educational sector. Our existing curricula in educational institution in respect of computer courses have to be thoroughly revamped. Internet connectivity should be provided to all Schools. Recognized aided and unaided Educational Institutions should ensure that the entire student community, irrespective of subject chosen should become computer literate. IT should be the integral part of education system.

### Objectives

**The student should be able to**

1. acquire basic knowledge of Computers.
2. acquire basic knowledge of Information Technology.
3. understand E-Commerce and related concepts.
4. understand concepts in Multimedia.
5. develop capabilities to access Information

using Internet.

6. learn the basic concepts of Computer Networking.
7. develop an understanding of principles based on visual environment.
8. acquire skills for creation of Basic Web Pages.
9. acquaint with basic techniques and knowledge required for computing applications.
10. get aware about cyber laws and ethics.

### Std. XI

#### 1 Introduction to Information Technology

- 1.1 Information Technology: Definition, Introduction, Information Systems, Software, Data
- 1.2 IT in Business, Industry, Home, Play, Education, Training, Science and Engineering.
- 1.3 Computers in Hiding

#### 2 Office Suite

- 2.1 Word Processor- Microsoft Word and its main features
- 2.2 Spreadsheets – Microsoft Excel and its main features
- 2.3 Presentations – Microsoft PowerPoint

#### 3 Multimedia

- 3.1 Multimedia-Definition, Communication, Components, Building Blocks, Scope, Uses, Application purposes
- 3.2 Overview of Computer Images
- 3.3 Digital Audio
- 3.4 Overview of Video
- 3.5 Flash – Overview and Introduction



- 3.6 Multimedia Design and Future Directions
- 4 Web Browsers, E-mail Clients and Messenger Utilities**
- 4.1 Overview, Working of the Internet and WWW
- 4.2 Role of Web Servers, Clients
- 4.3 Web Browsers and their use, Popular Web Browsers
- 4.4 E-Mail Servers and Protocols
- 4.5 E-mail Clients and Web Based Mail Access using Browser
- 4.6 Messenger Services and Clients
- 4.7 FTP
- 5 File and Disk Utilities**
- 5.1 Concept of Files and directories
- 5.2 File Archival, compression and encryption
- 5.3 Disc Tools (Windows 7) Error-Checking and Defragmentation
- 5.4 Computer Security
- 6 GIF Animator**
- 6.1 GIF Animation, Image Count, Looping and Repeat Count
- 6.2 Colour palettes and Image dither methods
- 6.3 Image Parameters
- 6.4 Image Transparency
- 7 Vector Graphics using CorelDraw**
- 7.1 Introduction
- 7.2 Tools and menus
- 7.3 Basic drawing working with text-basic
- 7.4 Page Layout
- 7.5 Printing
- 8 HTML**
- 8.1 Uses, Features, Properties and Limitations
- 8.2 Tags and Attributes, Basic Tags, Paragraph and Heading Tags, Comments
- 8.3 Ordered and Unordered Lists and Related Tags, Nested Lists
- 8.4 Anchor Tag and Hyperlinks in HTML
- 8.5 Division and Physical Style Tags, working with Fonts, font types, sizes and colours
- 8.6 Body background colour, text colour and hyperlink colours, Pre-formatting, Line Break and Horizontal Rules, Displaying special characters in HTML
- 8.7 Images in HTML, related tags and attributes, features of BMP, JPG and GIF Raster image formats
- 8.8 Tables in HTML and related tags
- 8.9 Marquee
- 8.10 Java Applets
- Std. XI - Practical List**
1. Identification of Computer Systems and understanding LAB setup.
  2. Exercise on Windows, Start Menu and Accessories.
  3. Creating Documents, page formatting, use of fonts and colour and printing using Word
  4. Mail merge and envelope printing using Word
  5. Study of Spreadsheet using Excel
  6. Create simple Presentation and Slideshow using PowerPoint
  7. Practical on simple Flash based animation
  8. Study of a Web Browser for browsing different websites
  9. Acquisition of e-mail ID on free web-based e-mail servers; sending and receiving emails with and without attachments.
  10. Study and use of search engines and



messengers.

11. Downloading and saving Web page content and images as files.
12. Creation of Compressed File Archives ZIP and RAR
13. Study of Disk Management Tools
14. Create a simple web page using basic HTML tags.
15. Creation of WEB page containing graphics and table.
16. Use of Hyperlinks on web pages.
17. Simple animation using GIF Animator Package
18. Creation of simple graphics using toolbox and menus in CorelDraw package.
19. Creation of a magazine cover using CorelDraw including title, subtitles, lead and sub-article info, coloured text, shapes etc, volume number and cost.

## **Std. XII**

### **1 Web Publishing**

- 1.1 HTML Page Frames
- 1.2 Image Mapping
- 1.3 Forms and Form Objects
- 1.4 Inserting Sound and Video
- 1.5 Use of Unicode and Indian Language Fonts
- 1.6 Cross-Browser Testing
- 1.7 Introduction to CSS
- 1.8 Web Server

### **2 Cyber Laws and Ethics**

- 2.1 Moral, Ethics, and Law
- 2.2 Ethics Culture and ethics for computer users, professionals and business
- 2.3 Information Service
- 2.4 Code and guidelines of ethics
- 2.5 Introduction to cyber laws and IT Act

of India 2000

- 2.6 Digital Signature, Electronic Records-Attribution, acknowledgement and dispatch
- 2.7 Ten Commandments of Computing
- 2.8 Security, Privacy and Control
- 2.9 Intellectual Property Rights

### **3 E-Commerce**

- 3.1 Electronic Commerce-Scope, Definition
- 3.2 Trade Cycle
- 3.3 Electronic markets-Usage, Advantages and Disadvantages, Future
- 3.4 Electronic Data Interchange-Definition, Benefits
- 3.5 Internet Commerce, e-Commerce in Perspective
- 3.6 EDI Security

### **4 Introduction to Networking**

- 4.1 Communication and Network Technologies
- 4.2 Internet, Network Communication and Protocols
- 4.3 Transmission Media  
Communication over Wires and Cables, Wireless Communication and Standards
- 4.4 Network Architecture  
Relationships and Features
- 4.5 Cable Topologies
- 4.6 Network Hardware

### **5 DTP using Adobe InDesign**

- 5.1 Document Setup and working environment
- 5.2 Creating Frames, Moving Objects, Selection Techniques
- 5.3 Working with Text
- 5.4 Character Settings
- 5.5 Paragraph Settings



- 5.6 Working with Images in InDesign
- 5.7 The Pages Panel
- 5.8 Working with tables
- 5.9 Exporting to PDF
- 6 Adobe Acrobat**
  - 6.1 Concept of PDF, applications, features, ability to embed images and fonts etc.
  - 6.2 Adobe PDF Writer Printer and PDF Conversion Settings
  - 6.3 The Adobe Acrobat Program, Features and Tools
  - 6.4 Document Security Options
- 10. Conversion between Audio File Formats (based on Std XI syllabus)
- 11. Image Conversion between Image file formats (based on Std XI syllabus)
- 12. Conversion between Video file formats (based on Std XI syllabus)
- 13. InDesign - use of tool box and creation of simple letterhead or identity card of your institute
- 14. InDesign – Design of a commercial color newspaper advertisement related to the exhibition of educational books in the size 2 columns x 10 cm.
- 15. Conversion of a Microsoft Word Document into PDF using Adobe PDF Printer (with and without Images)
- 16. Conversion of a Microsoft PowerPoint Presentation into PDF using Adobe PDF Printer (with and without Images)
- 17. Conversion of an Adobe InDesign Document into PDF (with and without Images)
- 18. Creation of a PDF document with bookmarks/links within the same document
- 19. Study of Standard Security Features within a PDF Document
- 20. Conversion of a CorelDraw Image into PDF

### Practical List

1. Creation of a Website
  2. Creation of a Website with Frames and CSS
  3. Hyperlinks on a Web Page using Client Side Image Mapping
  4. Hyperlinks on a Web Page using Server Side Image Mapping
  5. Use of Audio and Animation on Web Pages
  6. Use of Video on Web Pages
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  8. Cross Browser Testing and Differences in Rendering
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## Information Technology - Commerce (99)

### Introduction

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3. understand E-Commerce and related concepts
4. understand concepts in Multimedia
5. develop capabilities to access Information using Internet
6. learn the basic concepts of Computer Networking
7. develop an understanding of principles based on visual environment
8. acquire skills for creation of Basic Web Pages
9. acquaint with basic techniques and knowledge required for computing applications
10. get aware about cyber laws and ethics

### Std. XI

#### 1 Introduction to Information Technology

- 1.1 Information Technology: Definition, Introduction, Information Systems, Software, Data
- 1.2 IT in Business, Industry, Home, Play, Education, Training, Science and Engineering
- 1.3 Computers in Hiding

#### 2 Office Suite

- 2.1 Word Processor- Microsoft Word and its main features
- 2.2 Spreadsheets – Microsoft Excel and its main features
- 2.3 Presentations – Microsoft PowerPoint

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- 3.1 Multimedia-Definition, Communication, Components, Building Blocks, Scope, Uses, Application purposes
- 3.2 Overview of Computer Images
- 3.3 Digital Audio



- 3.4 Overview of Video
- 3.5 Flash – Overview and Introduction
- 3.6 Multimedia Design and Future Directions
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  - 4.1 Overview, Working of the Internet and WWW
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  - 4.3 Web Browsers and their use, Popular Web Browsers
  - 4.4 E-Mail Servers and Protocols
  - 4.5 E-mail Clients and Web Based Mail Access using Browser
  - 4.6 Messenger Services and Clients
  - 4.7 FTP
- 5 File and Disk Utilities**
  - 5.1 Concept of Files and directories
  - 5.2 File Archival, compression and encryption
  - 5.3 Disc Tools (Windows 7) Error-Checking and Defragmentation
  - 5.4 Computer Security
- 6. Basic Database Concepts**
  - 6.1 Definition of Database and database program
  - 6.2 Tables, Rows/Records, Columns/Fields, Differences between database and spreadsheet
  - 6.3 Relational abilities and meaning of Relational Database
  - 6.4 Basic Concepts of database and RDBMS
  - 6.5 Constraints to ensure data quality
  - 6.6 Database Administration, Software Development, Business Analysis
  - 6.7 SQL, History and Command Categories

## **7 Overview of Tally**

- 7.1 Advantages of computerized accounting
- 7.2 Introduction to Tally and its features.

## **8 HTML**

- 8.1 Uses, Features, Properties and Limitations.
- 8.2 Tags and Attributes, Basic Tags Paragraph and Heading Tags, Comments
- 8.3 Ordered and Unordered Lists and Related Tags, Nested Lists
- 8.4 Anchor Tag and Hyperlinks in HTML
- 8.5 Division and Physical Style Tags, working with Fonts, font types, sizes and colours.
- 8.6 Body background colour, text colour and hyperlink colours, Pre-formatting, Line Break, and Horizontal Rules, Displaying special characters in HTML
- 8.7 Images in HTML, related tags and attributes, features of BMP, JPG and GIF Raster image formats
- 8.8 Tables in HTML and related tags
- 8.9 Marquee
- 8.10 Java Applets

## **Std. XI - Practical List**

1. Identification of Computer Systems and understanding LAB setup.
2. Exercise on Windows, Start Menu and Accessories.
3. Creating Documents, page formatting, use of fonts and colour and printing using Word
4. Mail merge and envelope printing using Word



5. Study of Spreadsheet using Excel
6. Create simple Presentation and Slideshow using PowerPoint
7. Practical on simple Flash based animation
8. Study of a Web Browser for browsing different websites
9. Acquisition of e-mail ID on free web-based e-mail servers; sending and receiving emails with and without attachments.
10. Study and use of search engines and messengers.
11. Downloading and saving Web page content and images as files.
12. Creation of Compressed File Archives ZIP and RAR
13. Study of Disk Management Tools
14. Create a simple web page using basic HTML tags.
15. Creation of WEB page containing graphics and table.
16. Use of Hyperlinks on web pages.
17. Creating simple database, table, forms and reports using Access.
18. Generating simple queries and verifying results. (Access).
19. Study of TALLY Package (GATEWAY)

## **Std. XII**

### **1 Web Publishing**

- 1.1 HTML Page Frames
- 1.2 Image Mapping
- 1.3 Forms and Form Objects
- 1.4 Inserting Sound and Video
- 1.5 Use of Unicode and Indian Language Fonts
- 1.6 Cross-Browser Testing
- 1.7 Introduction to CSS
- 1.8 Web Server

### **2 Cyber Laws and Ethics**

- 2.1 Moral, Ethics and Law
- 2.2 Ethics Culture and ethics for computer users, professionals and business
- 2.3 Information Service
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- 2.5 Introduction to cyber laws and IT Act of India 2000
- 2.6 Digital Signature, Electronic Records- Attribution, acknowledgement and dispatch.
- 2.7 Ten Commandments of Computing
- 2.8 Security, Privacy and Control
- 2.9 Intellectual Property Rights

### **3 E-Commerce**

- 3.1 Electronic Commerce-Scope, Definition
- 3.2 Trade Cycle
- 3.3 Electronic markets-Usage, Advantages and Disadvantages, Future
- 3.4 Electronic Data Interchange- Definition, Benefits
- 3.5 Internet Commerce, e-Commerce in Perspective
- 3.6 EDI Security

### **4 Introduction to Networking**

- 4.1 Communication and Network Technologies
- 4.2 Internet, Network Communication and Protocols
- 4.3 Transmission Media, Communication over Wires and Cables, Wireless Communication and Standards
- 4.4 Network Architecture, Relationships and Features
- 4.5 Cable Topologies
- 4.6 Network Hardware

### **5 Data Management using Access**



- 5.1 Microsoft Access and its main features, Database Concepts
  - 5.2 Opening existing Databases
  - 5.3 Working with Tables
  - 5.4 Introduction to Forms and working with forms
  - 5.5 Table Relationships (one-to-one and many-to-many) Queries, Query types, creation of Query manually as well as using wizard, calculations using queries
  - 5.6 Introduction to Reports and working with Reports
- 6 Tally**
- 6.1 Creating and configuring Company Menus related to Accounts
  - 6.2 Working with Groups and Ledgers
  - 6.3 Study of Cost centers and Vouchers
  - 6.4 Printing Purchase orders, Sales orders and Invoice
  - 6.5 Study of Trial Balance, Balance Sheet and Profit and Loss Account

### **Practical List**

1. Creation of a Website
2. Creation of a Website with Frames and CSS
3. Hyperlinks on a Web Page using Client Side Image Mapping
4. Hyperlinks on a Web Page using Server Side Image Mapping
5. Use of Audio and Animation on Web Pages



## General Knowledge (32)

### Introduction

General Knowledge has not become important only today but it occupied and retained its important position from the earliest times. General Knowledge is an inseparable part of competitive examinations.

With this view the Government of Maharashtra, through the resolution dated 5<sup>th</sup> July, 2002 has introduced 'General Knowledge' as a compulsory subject for the Sainiki Schools in Maharashtra at +2 stage. The students getting education in Sainiki School at the +2 stage are supposed to develop adequate general knowledge. The motto of introducing the subject is to empower the students to appear for the competitive examination in general and National Defence Academy (NDA) Exam in particular.

The syllabus is systematically structured by treating history, Geography, Defence studies and General Ability as a whole and organizing relevant information in such a way that it will cater to the specific needs of students for the Board examination in the subject at Std XII as well as National Defence Academy (NDA) exam and other competitive examinations.

### Objectives

#### To enable the students to

1. Develop an ability to appear for National Defence Academy examinations and other competitive examinations.
2. Get acquainted with the Indian History, World Geography as well as Indian Geography, Indian Polity, Defence set up & its functioning.
3. Acquire the knowledge of recruitment in the Armed Forces and paramilitary forces as an officer.
4. Develop interest among the students to join armed forces.
5. Develop interest in Defence strategies.
6. Develop the general ability of the students regarding
  - i) The geographical aspects of India and the Earth.
  - ii) Major historical dates and events of India and World.
  - iii) Current affairs.
7. Inculcate the leadership qualities among students.
8. Develop reference skills and inculcate self study habits.
9. Acquaint the students with rich national culture and heritage.
10. Make aware the students, regarding national and international up-dates.



## Section A : History - Std. XI

UNIT	SUB.UNITS
1. Ancient India	i) The Harappan Civilisation(2500 to 1800 BC) ii) Vedic Period, The Aryans (1500 BC to 1000 BC) Early Vedic age iii) Later Vedic age (1000 BC to 600 BC) iv) Rise of Jainism and Buddhism
2. Ancient Dynasties	i) Mahajanpadas ii) The Magdha Empire(600 to 400 BC) iii) The Maurya Dynasty(321 to 289 BC) iv) Post Mauryan period v) Gupta Dynasty(320 to 550 AD)
3. Medieval India	The Sultanate of Delhi i) The Slave Dynasty(1206 to 1290 AD) ii) The Khilji Dynasty(1290 to 1320 AD) iii) The Tughlaq Dynasty(1320 to 1414 AD)The Sayyad Dynasty(1414 to 1451 AD) iv) The Lodhi Dynasty(1451 to 1526 AD)
4. The Mughal Dynasty	i) Babur (1526 to 1531 AD) ii) Humayun (1530 to 1540 and 1555-56) iii) The Afghan Interregnum Sher Shah Suri (1540 to 1545) iv) Akbar (1556 to 1605) v) Jahangir (1605 to 1627) vi) Shahajahan (1628 to 1658) vii) Aurangzeb (1659 to 1707)
5. Modern India	i) Coming of the Europeans ii) India under the British rule of East India Company. iii) British Governors under company rule (1757 to 1857)



**SECTION B : GEOGRAPHY**  
**Std. XI**

UNIT	SUB.UNITS
1. Astronomy	i) The Earth as a planet
2. Lithosphere	i) The Earth's crust, Rocks and Weathering
3. Atmosphere	i) Atmosphere and it's composition
4. Hydrosphere	i) Ocean currents and tides
5. Maps and Map Reading	i) Elements of Map ii) Methods of showing relief features on Map iii) Contours

**SECTION C : DEFENCE STUDIES**  
**Std. XI**

UNIT	SUB.UNITS
1. Introduction to Defence Studies	i) Definition of Defence ii) Scope of Defence iii) Types of war iv) Utility of Defence
2. Higher Defence Organisation	i) Defence Committee of the Cabinet ii) Defence Minister's committee iii) Chief of the staff committee iv) National Defence Council
3. Organization of Indian Armed Forces	i) Army Organisation ii) Navy Organisation iii) Air Force Organisation
4. Training Institutions of Defence Services	i) Officer's Training Institutions of the Army ii) Officer's Training Institutions of the Navy iii) Officer's Training Institutions of the Air Force



**SECTION D : GENERAL ABILITY**  
**Std. XI**

UNIT	SUB.UNITS
1. Fine Arts	i) Music ii) Dance iii) Painting
2. Sports and Literature	i) Famous books and their Authors ii) Sports
3. Constitution of India	i) Preamble, Salient features ii) Citizen and citizenship iii) Fundamental Rights and Duties iv) Directive Principles
4. Current Events	A) Who's Who in India B) The World we live in

**(32) General Knowledge**

**Std. XII - A: History**

Unit	Sub Unit
3. Freedom Movement in India(1857 to 1947)	i) The Revolt of 1857 ii) The Socio-cultural awakening. iii) Indian National Congress a) 1885 to 1905 b) 1905 to 1920
4. Mahatma Gandhi and Nationalist Movement	i) Non co-operation and Beyond.(1920 to 1947) ii) Implementation of Gandhian thoughts after Independence. a) Panchayati Raj b) Co-operatives c) Community Development d) Sarvodaya and Bhoodan Movement e) Secularism and Democracy



5. Post Independence India	<ul style="list-style-type: none"> <li>i) Economic Planning in India</li> <li>ii) Five year plan. (First to Twelfth)</li> <li>iii) Foreign policy of India</li> </ul>
6. National Integration	Necessity and History
7. Modern World	<ul style="list-style-type: none"> <li>i) American War of Independence.</li> <li>ii) French Revolution.</li> <li>iii) Industrial Revolution.</li> <li>iv) Russian Revolution.</li> </ul>
8. World During two World Wars	<ul style="list-style-type: none"> <li>i) First World War (1914-1918)</li> <li>ii) League of Nations.</li> <li>iii) Rise of Dictatorship in Europe (Fascism and Nazism)</li> <li>iv) Second World War (1939-1945)</li> </ul>
9. United Nations	<ul style="list-style-type: none"> <li>i) Charter of UNO.</li> <li>ii) Principal Organs.</li> <li>iii) Flag, Membership and languages.</li> <li>iv) Specialized Agencies.</li> </ul>

### Std. XII

### General Geography of India

#### B: Geography

Unit	Sub Unit
1. Location	Location, Dimensions and Boundaries.
2. Physiography	Relief Features
3. River Systems	Rivers and Lakes
4. Climate	Concept of Monsoon
5. Natural Vegetation	Forests
6. Mineral and Energy Resources	<ul style="list-style-type: none"> <li>i) Mineral Resources</li> <li>ii) Energy Resources</li> </ul>



7. Industries	i) Agro based ii) Mineral based.
8. Transportation, Communication and Trade	i) Transportation and Communication ii) International Trade
9. Map Reading	Topographical Sheets.

### C : Defence Studies

Unit	Sub Unit
2. Entry into Armed Forces.	i) After std. 12 <sup>th</sup> ii) After Graduation iii) After Post Graduation and NCC 'C' Certificate.
3. India's Internal Security	i) Paramilitary forces & their role ii) Entry into paramilitary forces iii) Second line of Defence
4. Leadership	i) Leadership qualities ii) Leadership traits iii) Officer's like qualities.
5. Interview and Interview techniques	Interviews for Military Organisations.
6. Training Institutions for Civil Services	Training for Military Organisation



**D: General Ability**

<b>Unit</b>	<b>Sub Unit</b>
1. Days observed and Common Abbreviations	i) Well known days and their celebrations. ii) Abbreviations and short forms
2. Indian Polity	i) The Union Government of India a) Legislature b) Executive ii) The State Government a) Legislature b) Executive iii) The Judiciary
3. Major Inventions and Discoveries	i) Science ii) Technology iii) Geographical Discoveries
4. National Insignia	i) National Flag ii) National Emblem iii) National Anthem iv) National Song v) National Awards and Awardees vi) Gallantry Awards.



## APPENDIX 'A'

### Higher Secondary Certificate Examination at the end of Std. XII

Pune, Mumbai, Nagpur, Aurangabad, Kolhapur, Amravati, Nasik, Latur and Kokan Divisional Boards

#### Subjects and Number of Papers and Practicals for the Examination

- (i) in each of the two languages and Environment Education under the Compulsory Group carrying 50 marks each and  
 (ii) in each of the four elective subjects from the Elective Group carrying 100 marks each.
- The names of the individual subjects to be taken according to the scheme are shown below alongwith the number of papers, duration of papers and maximum marks.

Sr. No	Subject	Theory		Practicals / Oral / Project			Maximum Marks	
		No.of Papers	Duration (Hours)	Marks	No.of Practicals	Duration (Hours)		Marks
1	2	3	4	5	6	7	8	9

#### A) Compulsory Subjects

(See Note No. 1 at the end)

- |    |   |     |     |    |     |   |    |     |
|----|---|-----|-----|----|-----|---|----|-----|
| 1. | English   | One | 3   | 80 | --- | ---   | 20 | 100 |
| 2. | Modern Indian Language or Modern Foreign Language or Classical Language | One | 3   | 80 | --- | ---   | 20 | 100 |
| 3. | Environment Education   |     |     |    |     | Seminar or Journal<br>Assignment Project work | 50 | 50  |
| 4. | Health and Physical Education   | One | 1.5 | 25 | --- | 20 + 30                                       | 25 | 50  |





Sr. No.	Subject	Theory			Practicals / Oral / Project			Maximum Marks
		No. of Papers	Duration (Hours)	Marks	No. of Practicals	Duration (Hours)	Marks	
1	2	3	4	5	6	7	8	9

**B) Elective Subjects** (Any four subjects under any one of the three streams of subjects viz. Arts, Commerce and Science-Vide classification of subjects under the three streams attached as Appendix 'b')

1.	Modern Indian Language (Other than the one offered under Compulsory Group)	One	3	80	---	---	20	100
2.	Modern Foreign Language (Other than the one offered under Compulsory Group)	One	3	80	---	---	20	100
3.	Sanskrit	One	3	80	---	---	20	100
4.	Ardhamagadhi	One	3	80	---	---	20	100
5.	Pali	One	3	80	---	---	20	100
6.	Arabic	One	3	80	---	---	20	100
7.	Persian	One	3	80	---	---	20	100
8.	Avesta-Pahlavi	One	3	80	---	---	20	100

Sr. No.	Subject	Theory			Practicals / Oral / Project			Maximum Marks
		No.of Papers	Duration (Hours)	Marks	No.of Practicals	Duration (Hours)	Marks	
1	2	3	4	5	6	7	8	9
9.	History	One	3	80	---	---	20	100
10.	Geography	One	3	80	---	---	20	100
11.	Mathematics & Statistics (for Arts and Science students)	One	3	80	One	1	20	100
12.	Mathematics & Statistics (for Commerce students)	One	3	80	One	1	20	100
13.	Geology	One	3	70	One	3	30	100
14.	Political Science	One	3	80	---	---	20	100
15.	Child Development	One	3	70	One	3	30	100
16.	Textiles	One	3	70	One	3	30	100
17.	Sociology	One	3	80	---	---	20	100
18.	Philosophy	One	3	80	---	---	20	100





Sr. No.	Subject	Theory			Practicals / Oral / Project			Maximum Marks
		No.of Papers	Duration (Hours)	Marks	No.of Practical	Duration (Hours)	Marks	
1	2	3	4	5	6	7	8	9
19.	Psychology	One	3	80	---	---	20	100
20.	Logic	One	3	80	---	---	20	100
21.	Economics	One	3	80	---	---	20	100
22.	Book-keeping & Accountancy	One	3	80	---	---	20	100
23.	Organisaoun of Commerce & Management	One	3	80	---	---	20	100
24.	Secretarial Practice	One	3	80	---	---	20	100
25.	Co-operation	One	3	80	---	---	20	100
26.	Physics	One	3	70	One	3	30	100
27.	Chemistry	One	3	70	One	3	30	100
28.	Biology	One	3	70	One	3	30	100
29.	Drawing	One	3	80	One	3	20	100

Sr. No.	Subject	Theory			Practicals / Oral / Project			Maximum Marks
		No. of Papers	Duration (Hours)	Marks	No. of Practical	Duration (Hours)	Marks	
1	2	3	4	5	6	7	8	9
30.	Design and Colour	---	3	80	---	---	20	100
31.	Pictorial Composition	---	3	80	---	---	20	100
32.	History of Art & Appreciation	One	3	80	---	---	20	100
33.	History & Development of Indian Music	One	3	100	---	---	---	100
34.	Vocal Light Music (Practical I)	---	---	---	One	3	100	100
35.	Vocal Classical Music (Practical II)	---	---	---	One	3	100	100
36.	Instrumental Light Musical (III) OR	---	---	---	One	3	100	100
37.	Percussion	One	2½	50	One	30 min.	50	100
38.	Agriculture Science and Technology	One	3	70	One	3	30	100
39.	Animal Science and Technology	One	3	70	One	3	30	100





Sr. No.	Subject	Theory			Practicals / Oral / Project			Maximum Marks
		No. of Papers	Duration (Hours)	Marks	No. of Practical	Duration (Hours)	Marks	
1	2	3	4	5	6	7	8	9
40.	Defence Studies	One	3	80	One	3	20	100
41.	Education	One	3	80	---	---	20	100
42.	Occupational Orientation							
	i) Stenography (English/Marathi)	---	---	---	One	3	100	100
	ii) Library and Information Science	One	2	50	One	3	50	100
43.	Information Technology (Science, Arts & Commerce)	One	2½	80	One	3	20	100
44.	General Knowledge (For Military Schools only)	One	2	100	---	---	---	100

**Notes :**

1. Students in Standards XI and XII will have to offer
  - i) English - as a compulsory language and
  - ii) A Modern Indian Language or A Modern Foreign Language or A Classical Language or Information Technology.
  - iii) Environment Education.
  - iv) Health and Physical Education (Grade Subject)
2. The cases arising out of the offering of wrong combinations of the subjects shall be decided by the State Board on the merits of each case.
3. The students selecting Agriculture subject may offer Biology as one more fifth additional subject under optional subjects, provided that:
  - i) Such students selecting Agriculture subject will be required to pass in Two Compulsory Languages, Environmental Education and Four out of the Five elective subjects.
  - ii) However, the percentage of marks obtained by them will be calculated on the total marks allotted for eight subjects offered at the Higher Secondary Certificate Examination.
4. A bonafide foreign national residing in India for a temporary period not exceeding two academic years and seeking admission in Std XI or Std. XII shall be permitted to offer Arabic or Persian under optional group, as Modern Foreign language, under compulsory group. Such permission shall be given after scrutiny of case on its merits by the concerned Divisional Board.



## APPENDIX 'B'

### Classification of Subjects under Arts, Commerce, Science

ARTS	COMMERCE	SCIENCE
<p><b>A) Compulsory Subjects</b></p> <ol style="list-style-type: none"> <li>1) English</li> <li>2) Modern Indian Language or Modern Foreign Language or Classical Language</li> <li>3) Environment Education</li> <li>4) Health and Physical Education</li> </ol> <p><b>Elective Subjects</b></p> <ol style="list-style-type: none"> <li>1) A Modern Indian Language</li> <li>2) A Modern Foreign Language</li> <li>3) Sanstrit</li> <li>4) Ardhamagadhi</li> <li>5) Pali</li> <li>6) Arabic</li> <li>7) Persian</li> <li>8) Avesta-Pahlavi</li> <li>9) History</li> <li>10) Geography</li> <li>11) Mathematics and Statistics</li> <li>12) Political Science</li> <li>13) Home Management (for Standard XI only)</li> <li>14) Food Science (for Standard XI only)</li> <li>15) Child Development (for Standard XII only)</li> <li>16) Textile (for Standard XII:only)</li> <li>17) Sociology</li> <li>18) Philosophy</li> <li>19) Logic</li> <li>20) Psychology</li> <li>21) Economics</li> <li>22) Defence Studies</li> <li>23) Drawing,</li> <li>24) *Design and Colour</li> <li>25) Composition</li> <li>26) History of Art &amp; Appreciation</li> <li>27) History and Development of Indian Music</li> <li>28) Vocal Light Music (Practical I)</li> <li>29) Vocal Classical Music (Practical II)</li> <li>30) Instrumental Music (Practical III) OR</li> <li>31) Percussion</li> <li>32) European Music</li> <li>33) Historical Development of Indian Classical Dance</li> <li>34) Book-Keeping &amp; Accountancy</li> <li>35) Co-operation</li> <li>36) Education</li> <li>37) Occupational Orientation</li> <li>38) Information Technology</li> <li>39) English Literature</li> </ol>	<p><b>A) Compulsory Subjects</b></p> <ol style="list-style-type: none"> <li>1) English</li> <li>2) Modern Indian Language or Modern Foreign Language or Classical Language</li> <li>3) Environment Education</li> <li>4) Health and Physical Education</li> </ol> <p><b>Elective Subjects</b></p> <ol style="list-style-type: none"> <li>1) Mathematics and Statistics</li> <li>2) Economics</li> <li>3) Geography</li> <li>4) Book-keeping and Accountancy</li> <li>5) Organisation of Commerce and Management</li> <li>6) Secretarial Practice</li> <li>7) Co-operation</li> <li>8) Occupational Orientation</li> <li>9) Defence Studies</li> <li>10) Information Technology</li> <li>11) English Literature</li> </ol>	<p><b>A) Compulsory Subjects</b></p> <ol style="list-style-type: none"> <li>1) English</li> <li>2) Modern Indian Language or Modern Foreign Language or Classical Language</li> <li>3) Environment Education</li> <li>4) Health and Physical Education</li> </ol> <p><b>Elective Subjects</b></p> <ol style="list-style-type: none"> <li>1) Mathematics and Statistics</li> <li>2) Geology</li> <li>3) Home Management (for Standard XI only)</li> <li>4) Food Science (for Standard XI only)</li> <li>5) Child Development (for Standard XII only).</li> <li>6) Textile (for Std. XII only)</li> <li>7) Psychology</li> <li>8) Economics</li> <li>9) Geography</li> <li>10) Defence-Studies</li> <li>11) Physics</li> <li>12) Chemistry</li> <li>13) Biology</li> <li>14) Agriculture Science and Technology</li> <li>15) Animal Science and Technology</li> <li>16) Sociology</li> <li>17) Sanskrit</li> <li>18) Education</li> <li>19) Information Technology</li> <li>20) English literature.</li> </ol>

