



SCHOOL MOTTO

‘विद्ययाऽमृतमश्नुते’

विद्या से अमृत की प्राप्ति होती है ।’

'Through knowledge one attains immortality.'

The Vedas have declared that attainment of immortality is possible for those who attain knowledge, so one must always strive to acquire learning by staying with one's preceptor or the 'Guru'



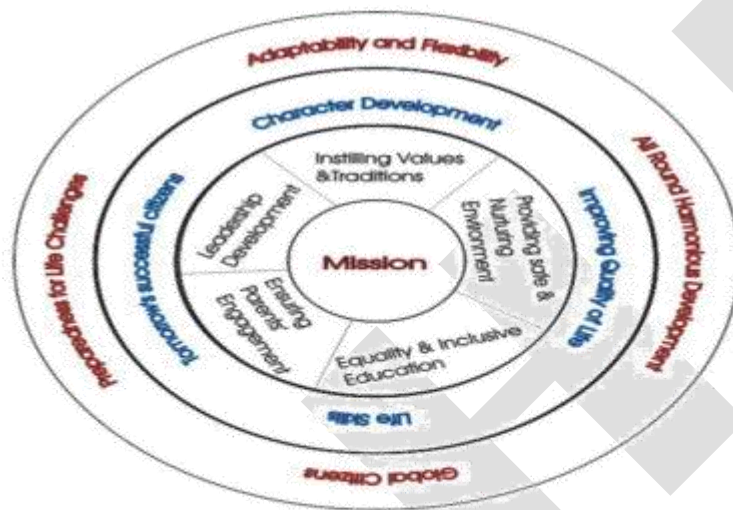
Hansraj - Vision & Mission

Vision

To inspire young students to be confident, considerate good human beings who would be lifelong learners with global attitude and responsible citizens.

Mission

HPS is committed to promote human values, provide a nurturing environment and engaging parents towards all round harmonious development of our students. To achieve this, the workforce at HPS:



- ☐ Ensures that each student acquires the knowledge, humane values and skills to achieve personal success and enrich community at national and international level.
- ☐ Prepares them to be responsible global citizens.
- ☐ Empowers learners to cope with both success and failure and prepares them to face the challenges of life.
- ☐ Instills the virtue of adaptability and

flexibility to enable students to excel in complex and interconnected changing world.

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ENGLISH

Road Map for Class XII ENGLISH

1. Objectives

- To build greater confidence and proficiency in oral and written communication
- To develop the ability and knowledge required in order to engage in independent reflection and inquiry
- To use appropriate English to communicate in various social settings
- To equip learners with essential language skills to question and to articulate their point of view
- To develop sensitivity towards, and appreciation for, other varieties of English like Indian English and the culture they reflect
- To enable the learners to access knowledge and information through reference skills(consulting a dictionary/thesaurus, library, internet etc)
- To enable learners create different art and apply their artistic skills in day to day activities
- To develop curiosity and creativity through extensive reading
- To facilitate self learning to enable them to become independent learners
- To review, organize and edit their own work and work done by peers
- Understand exemplary practices of art integrated lessons across the curricular areas
- To enable learners to imagine and explore through planned or organized art experiences
- create and express themselves freely and thus be able to develop and evaluate various
- art integrated lessons
- To inculcate experiential learning of academic content leading to holistic learning

2. Month wise division of syllabus

Lesson No./Topic	Name of the lesson	Month
1/ Writing 2/ Writing 3/ Writing 4/ Writing 5/ Prose 6/Poetry 7/ Poetry	<ul style="list-style-type: none"> • Notice • Invitation • Business Letter • Report Writing • Last Lesson • My Mother at 66 • Aunt Jennifers Tigers 	April
1/ Writing 2/ Writing 3/ Writing 4/ Writing 5/ Writing 6/Writing 7/ Prose 8/Poetry 9/Prose	<ul style="list-style-type: none"> • Poster • Advertisement • Job Application • Letter to Editor • Speech • Article • The Tiger King • Elementary School Classroom • Deep Water 	May
1/Prose 2/Poetry 3/Prose 4/Reading	<ul style="list-style-type: none"> • Lost Spring • Keeping Quiet • Journey to the End of the Earth 	July

	<ul style="list-style-type: none"> Note Making 	
1/Prose 2/Prose 3/Prose 4/Poetry 5/Prose	<ul style="list-style-type: none"> The Enemy Should Wizard Hit Mommy The Rat Trap A Thing of Beauty Indigo 	August
1/Poetry 2/Reading	<ul style="list-style-type: none"> A Road Side Stand Reading Comprehension 	September
1/Prose 2/Prose	<ul style="list-style-type: none"> Evans Tries an O Level The Interview 	October
1/Prose 2/Play 3/Prose	<ul style="list-style-type: none"> Poets and Pancakes On the face of it Going Places 	November
1/Prose	<ul style="list-style-type: none"> Memories of Childhood 	December

3. (a) Chapter wise Activities(miscellaneous activities other than the three enrichment activities to be taken up during the teaching learning process):

Name of the AIL activity	Learning Objectives	Learning Outcomes	Mode (Individual /pair/group)	Methodology /Procedure	Skills developed
1) A debate on having three languages in	<ul style="list-style-type: none"> To enable the learners to use 	<ul style="list-style-type: none"> Learner is able to express 	Individual	On the basis of their reading of the chapter, students	Writing,/ Speaking

school to study	<p>grammar structures and other grammatical forms accurately and appropriately</p> <ul style="list-style-type: none"> • To enable the learners to review, organize and edit their own work and work done by peers 	<p>ideas clearly, concisely, correctly and appropriately</p> <ul style="list-style-type: none"> • Learner is able to plan, organize and present ideas coherently 		will be asked to present their ideas on three languages in a given format.	
2) Narrating an experiences with a garbage picker/mine worker/ domestic help	<ul style="list-style-type: none"> • To enable the learners to communicate effectively in English 	<ul style="list-style-type: none"> • Learner is able to speak with accuracy, fluency and clarity following the overall rhythm of spoken English 	Individual	The class will be divided into groups, each group will be asked to speak on any garbage picker, mine work, worker, domestic help	Speaking

	<ul style="list-style-type: none"> To enable the learners to use language fluently appropriately and confidently in real life situations 	<ul style="list-style-type: none"> Learner is able to express ideas and opinions with confidence 			
3) Writing a letter about having learned to do something new	<ul style="list-style-type: none"> To enable the learners to communicate in a written format To enable the learners to review, organize and edit their own work and work done by 	<ul style="list-style-type: none"> Learner is able to express ideas clearly, concisely, correctly and appropriately Learner is able to plan, organize and present 	Individual	On the basis of their reading of the chapter, students will be asked to write a letter sharing their new experiences in their notebooks.	Writing

	peers	ideas coherently			
4) Narrate an incident where you have shown sympathy to one who was dishonest	<ul style="list-style-type: none"> To enable the learners to use grammar structures and other grammatical forms accurately and appropriately To enable the learners to review, organize and edit their own work and work done by peers 	<ul style="list-style-type: none"> Learner is able to express ideas clearly, concisely, correctly and appropriately Learner is able to plan, organize and present ideas coherently 	Individual	On the basis of their reading of the chapter, students will be asked to narrate an incident where they have shown sympathy to one.	Writing

<p>5) Choose an issue that has provoked a controversy and present your arguments the form of an article.</p>	<ul style="list-style-type: none"> • To enable the learners to communicate effectively in English • To enable the learners to use language fluently appropriately and confidently in real life situations 	<ul style="list-style-type: none"> • Learner is able to speak with accuracy, fluency and clarity following the overall rhythm of spoken English • Learner is able to express ideas and opinions with confidence 	Individual	Each student will be asked to speak about a controversy.	Speaking
<p>6) Write a report on a speech delivered by the tele communication minister on today's Impact of COVID 19 on the Mindset of</p>	<ul style="list-style-type: none"> • To enable the learners to Listen, converse and understand the topic and its main 	<ul style="list-style-type: none"> • Learner is able to extract relevant information with clarity and accuracy 	Individual	<ul style="list-style-type: none"> • Each student will be given a worksheet • They will listen to a recorded script • They will fill up the worksheet 	Writing

the People	<ul style="list-style-type: none"> points To enable the learners to listen and extract relevant information with clarity and accuracy 	<ul style="list-style-type: none"> Learner is able to acquire the ability to listen 		according to the listened script that will be played twice	
7) Role Play Based on the chapter – “Deep Water”	<ul style="list-style-type: none"> To enable the learners to communicate effectively in English To enable the learners to use language fluently appropriately and confidently in 	<ul style="list-style-type: none"> Learners are able to speak with accuracy, fluency and clarity following the overall rhythm of spoken English Learners are able to express ideas and opinions with confidence 	Group	The class will be divided into groups, each group will be allotted a part from the play. They will be given preparation time. At the end of which, they will present their role play.	Speaking

	real life situations				
8) Writing a Factual description of Your Role model (supported with decorated Bio Sketch and Picture) after interviewing him/her.	<ul style="list-style-type: none"> To enable the learners to use grammar structures and other grammatical forms accurately and appropriately To enable the learners to review, organize and edit their own work and work done by peers 	<ul style="list-style-type: none"> Learners are able to express ideas clearly, concisely, correctly and appropriately Learners are able to plan, organize and present ideas coherently 	Group	On the basis of their reading of the chapter "The Interview" and "Going Places" the students will be asked to write a Factual Description of their Role Model in their notebooks	Writing

3 (b) Assessment parameters & Rubrics for respective Activity:

LISTENING SKILLS

Assessment Parameters	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Understanding of the content 2. Ability to comprehend 3. Recollection of the content 4. Interpretation 5. Usage of linguistic and non-linguistic features (Cohesion, Keywords) 6. Listening for specific purpose (Radio, broadcast, Announcements, Commentaries etc.)	<ul style="list-style-type: none"> • Accuracy in comprehension • Ability to recollect the main points • Spontaneity in reaction • Successful in differentiating between relevant and irrelevant • Identification of the theme and 	<ul style="list-style-type: none"> • Displayed accuracy in comprehension and interpretation • Listened without distraction • Able to differentiate between relevant and irrelevant • Lacks spontaneity in discourse of action 	<ul style="list-style-type: none"> • Limited ability to differentiate between relevant and irrelevant • Impulsive listener • Listened with interruption • Accuracy couldn't be achieved perfectly 	<ul style="list-style-type: none"> • Distracted listener • Paid attention to irrelevant content • Reduced ability to interpret and recollect the main point • Didn't follow instructions 	<ul style="list-style-type: none"> • Unable to comprehend • Distracted listener • Lacks the ability to interpret and recollect the main points • Couldn't differentiate between relevant and irrelevant • Didn't follow instructions

7. Ability to differentiate between relevant and irrelevant 8. Spontaneous discourse of action	message of the delivered speech <ul style="list-style-type: none"> Listened without distraction 				
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SPEAKING SKILLS

Assessment Parameters	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Originality of idea 2. Pronunciation 3. Intonation 4. Confidence 5. Content accuracy	<ul style="list-style-type: none"> Correct pronunciation with effective intonation Clarity of speech Vast knowledge with 	<ul style="list-style-type: none"> Correct pronunciation Clarity of speech Fair degree of confidence Unable to use effective 	<ul style="list-style-type: none"> Limited clarity of speech Limited knowledge of the content Not 	<ul style="list-style-type: none"> Lacks fluency and coherence in the presentation of ideas Lacks confidence of public speaking Lacks 	<ul style="list-style-type: none"> Lack of confidence Incorrect pronunciation Irrelevant content No clarity in

6. Vast knowledge	impressive presentation	vocabulary	prompt enough	knowledge of content	speech
7. Promptly answered		<ul style="list-style-type: none"> • Didn't adhere to the time limit 	<ul style="list-style-type: none"> • Needs to work on body language 		<ul style="list-style-type: none"> • Lacks coherence and fluency
8. Body language	<ul style="list-style-type: none"> • Fluency and accuracy in delivering the ideas 				
9. Voice modulation					
10. Appropriate gestures	<ul style="list-style-type: none"> • Relevant vocabulary 				
11. Coherence and fluency					
12. Clarity in the usage of active vocabulary					
13. Time bound delivery of speech					

READING SKILLS

Assessment Parameters	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Reading for understanding	<ul style="list-style-type: none"> • Focused 	<ul style="list-style-type: none"> • Followed scanning and skimming 	<ul style="list-style-type: none"> • Lacks accuracy in attempting the worksheet given after reading 	<ul style="list-style-type: none"> • Distracted reader 	<ul style="list-style-type: none"> • Distracted reader
2. Ability to deduce the meaning	<ul style="list-style-type: none"> • Reading without distraction 	<ul style="list-style-type: none"> • Read without distraction 		<ul style="list-style-type: none"> • Unable to comprehend 	<ul style="list-style-type: none"> • Less attention span
3. Drawing inferences	<ul style="list-style-type: none"> • Ability to deduce the meaning 	<ul style="list-style-type: none"> • Couldn't complete the task within stipulated time 	<ul style="list-style-type: none"> • Couldn't follow scanning and skimming 	<ul style="list-style-type: none"> • Couldn't draw inferences 	<ul style="list-style-type: none"> • Unable to deduce the theme
4. Attentive and focussed	<ul style="list-style-type: none"> • Followed scanning as well as 				<ul style="list-style-type: none"> • Couldn't complete the task in stipulated time
5. Scanning		<ul style="list-style-type: none"> • Couldn't deduce the meaning 	<ul style="list-style-type: none"> • Less ability to comprehend 		<ul style="list-style-type: none"> • Couldn't draw inferences
6. Skimming	<ul style="list-style-type: none"> • Skimming 				
7. Explicitly	<ul style="list-style-type: none"> • Completed the task within stipulated 	<ul style="list-style-type: none"> • Couldn't differentiate between 			
8. Task completion					

within stipulated time	time	referential and inferential questions			
9. Ability to differentiate between referential and inferential questions	<ul style="list-style-type: none"> • Able to differentiate between referential and inferential questions 				

WRITING SKILLS

Long Composition:

Assessment Parameters	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Relevance of the content 2. Accuracy 3. Length of the answer according to marks 4. Presentation	<ul style="list-style-type: none"> • Correct format • Completely relevant answer • Sentence structure is accurate • Word limit is fully met 	<ul style="list-style-type: none"> • Relevant answer with good explanation • Word limit is met • Fluency and coherence in writing • Sentence 	<ul style="list-style-type: none"> • Answer is relevant with a fair degree of explanation • Word limit is partially met • Presentation requires 	<ul style="list-style-type: none"> • Answer has a limited degree of relevance • Word limit is partially met • Presence of grammatical errors • No coherence in 	<ul style="list-style-type: none"> • Answer has a very limited degree of relevance • Sentence structure lacks accuracy • Word limit is not met

5. Fluency 6. Coherence 7. Format 8. Completion of work within the stipulated time 9. Effective vocabulary 10. Correct spellings	<ul style="list-style-type: none"> Fluency and coherence in presentation of ideas Effective vocabulary No spelling errors 	<p>structure is correct</p> <ul style="list-style-type: none"> Vocabulary is less effective Less spelling errors 	<p>orderly organization</p> <ul style="list-style-type: none"> Lacks fluency Average usage of effective vocabulary Some spelling errors 	<p>writing</p> <ul style="list-style-type: none"> Presentation is not orderly organized Multiple spelling errors 	<ul style="list-style-type: none"> No coherence and fluency in writing Presentation is not orderly Multiple spelling errors Unable to comprehend the question's answer
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Short Composition:

Assessment Parameters	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Relevance of content 2. Accuracy	<ul style="list-style-type: none"> Correct format Completely relevant 	<ul style="list-style-type: none"> Relevant answer with good explanation 	<ul style="list-style-type: none"> Answer is relevant with a fair degree of explanation 	<ul style="list-style-type: none"> Answer has a limited degree of relevance Word limit 	<ul style="list-style-type: none"> Answer has a very limited degree of relevance

3. Length of the answer according to marks	answer	<ul style="list-style-type: none"> • Word limit is met 	<ul style="list-style-type: none"> • Word limit is partially met 	is partially met	<ul style="list-style-type: none"> • Sentence structure lacks accuracy
4. Presentation	<ul style="list-style-type: none"> • Sentence structure is accurate 	<ul style="list-style-type: none"> • Fluency and coherence in writing 	<ul style="list-style-type: none"> • Presentation requires orderly organization 	<ul style="list-style-type: none"> • Presence of grammatical errors 	<ul style="list-style-type: none"> • Word limit is not met
5. Fluency	<ul style="list-style-type: none"> • Word limit is fully met 	<ul style="list-style-type: none"> • Sentence structure is correct 	<ul style="list-style-type: none"> • Lacks fluency 	<ul style="list-style-type: none"> • No coherence in writing 	<ul style="list-style-type: none"> • No coherence and fluency in writing
6. Coherence	<ul style="list-style-type: none"> • Fluency and coherence in presentation of ideas 	<ul style="list-style-type: none"> • Vocabulary is less effective 	<ul style="list-style-type: none"> • Average usage of effective vocabulary 	<ul style="list-style-type: none"> • Presentation is not orderly organized 	<ul style="list-style-type: none"> • Presentation is not orderly
7. Format	<ul style="list-style-type: none"> • Effective vocabulary 	<ul style="list-style-type: none"> • Less spelling errors 	<ul style="list-style-type: none"> • Some spelling errors 	<ul style="list-style-type: none"> • Multiple spelling errors 	<ul style="list-style-type: none"> • Multiple spelling errors
8. Completion of work within the stipulated time	<ul style="list-style-type: none"> • No spelling errors 				<ul style="list-style-type: none"> • Unable to comprehend the question's answer
9. Effective vocabulary					
10. Correct spellings					

4.Number of Worksheets planned per chapter: One worksheet for each unit and each topic writing

5.Syllabus for periodic tests

Unit 1 (May) Syllabus covered till May 15
Half Yearly (September first week) Syllabus covered till July 15
Unit II (Dec) Full Syllabus
Pre Board 1 & 2 Full Syllabus

6.(a) Enrichment Activity

Minimum One activity per periodic to be given with details as under:

Name of the activity	Learning Objectives	Learning Outcomes	Mode (Individual /pair/group)	Methodology /Procedure	Skills developed
COVER PAGE DESIGNING (AIL Activity)	1. To make students aware about the poet/auth or 2. To enable students to recognise	1. Students are able to gather information about the poet/author they chose for this activity	Individual	THE STUDENTS WILL BE ASKED TO PREPARE A BEAUTIFULLY DESIGNED COVER PAGE DEPICTING THE	Thinking Skills, Communication Skills, Self confidence

	<p>their poet/author or whose work they have studied in course of class 12</p> <ol style="list-style-type: none"> 3. To be able to integrate art in literature 4. To enhance artistic and drawing skills of the students 5. To hone the innate creativity of the students 	<ol style="list-style-type: none"> 2. Students are able to integrate art in literature 3. Students are able to enhance their artistic and drawing skills 4. Students are able to showcase their creativity 		<p>FOLLOWING PARAMETERS:</p> <ol style="list-style-type: none"> 1. A Picture or sketch of any poet or author from any of their textbooks 2. Mention his / her name on it, along with the birth and death details. 3. Mention any of his/her 	
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				<p>important quote on the cover page.</p> <p>4. Write his / her significant works. Also mention the chapter or the poem from our text book.</p>	
Listening Activity	1. Listen, converse and understand the topic and its	1. students are able to distinguish between main points from	Individual	1. Each student will be given a worksheet	Listening, Thinking, Analyzing

	main points 2. To listen and extract relevant information with clarity and accuracy	supporting ideas		2. They will listen to a recorded script 3. They will fill up the worksheet according to the listened script that will be played twice	
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7.(b) Assessment parameters & Rubrics for respective Enrichment Activity:

LISTENING SKILLS

Listening Activity

Assessment	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs
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Parameters					Improvement (1)
<p>1. Understanding of the content</p> <p>2. Ability to comprehend</p> <p>3. Recollection of the content</p> <p>4. Interpretation</p> <p>5. Usage of linguistic and non-linguistic features (Cohesion, Keywords)</p> <p>6. Listening for specific purpose (Radio, broadcast, Announcements, Commentaries etc.)</p>	<ul style="list-style-type: none"> • Accuracy in comprehension • Ability to recollect the main points • Spontaneity in reaction • Successful in differentiating between relevant and irrelevant • Identification of the theme and message of the delivered speech • Listened without distraction 	<ul style="list-style-type: none"> • Displayed accuracy in comprehension and interpretation • Listened without distraction • Able to differentiate between relevant and irrelevant • Lacks spontaneity in discourse of action 	<ul style="list-style-type: none"> • Limited ability to differentiate between relevant and irrelevant • Impulsive listener • Listened with interruption • Accuracy couldn't be achieved perfectly 	<ul style="list-style-type: none"> • Distracted listener • Paid attention to irrelevant content • Reduced ability to interpret and recollect the main point • Didn't follow instructions 	<ul style="list-style-type: none"> • Unable to comprehend • Distracted listener • Lacks the ability to interpret and recollect the main points • Couldn't differentiate between relevant and irrelevant • Didn't follow instructions

7. Ability to differentiate between relevant and irrelevant					
8. Spontaneous discourse of action					

SPEAKING SKILLS

Debate

Assessment Parameters	Excellent (5)	V. Good (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Originality of idea	<ul style="list-style-type: none"> Correct pronunciation with effective intonation 	<ul style="list-style-type: none"> Correct pronunciation 	<ul style="list-style-type: none"> Limited clarity of speech 	<ul style="list-style-type: none"> Lacks fluency and coherence in the presentation of ideas 	<ul style="list-style-type: none"> Lack of confidence
2. Pronunciation	<ul style="list-style-type: none"> Clarity of speech 	<ul style="list-style-type: none"> Clarity of speech 	<ul style="list-style-type: none"> Limited knowledge of the content 	<ul style="list-style-type: none"> Lacks confidence of public speaking 	<ul style="list-style-type: none"> Incorrect pronunciation
3. Intonation	<ul style="list-style-type: none"> Vast knowledge with impressive presentation 	<ul style="list-style-type: none"> Fair degree of confidence 	<ul style="list-style-type: none"> Not prompt 	<ul style="list-style-type: none"> Lacks knowledge of content 	<ul style="list-style-type: none"> Irrelevant content
4. Confidence		<ul style="list-style-type: none"> Unable to use 			<ul style="list-style-type: none"> No clarity in speech
5. Content accuracy					
6. Vast knowledge					

7. Promptly answered 8. Body language 9. Voice modulation 10. Appropriate gestures 11. Coherence and fluency 12. Clarity in the usage of active vocabulary 13. Time bound delivery of speech	<ul style="list-style-type: none"> Fluency and accuracy in delivering the ideas Relevant vocabulary 	effective vocabulary <ul style="list-style-type: none"> Didn't adhere to the time limit 	enough <ul style="list-style-type: none"> Needs to work on body language 	<ul style="list-style-type: none"> Lacks coherence and fluency
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8.Chapter/ unit wise allocation of marks

Chapter/ Unit		
SECTION	SKILL ASSESSED	MARKS
A	Reading Skill	20

B	Writing Skills	30	
C	Literature Textbooks	30	
	Total marks	80	
	Speaking & Listening Skills	20	

9. Question paper design: (Typology of questions with respective weightage)

BLUE PRINT OF EXAM PAPER ENGLISH CORE (CODE NO. 301)

CLASS – XII 2021-22

PART A 40 MARKS

Reading Comprehension 20 Marks

I. Multiple Choice questions based on one unseen passage to assess comprehension, interpretation and inference. Vocabulary and inference of meaning will also be assessed. The passage may be factual, descriptive or literary. Ten out of eleven questions to be done. (10x1=10 Marks)

II. Multiple Choice questions based on one unseen case-based factual passage with verbal/visual inputs like statistical data, charts, newspaper report etc. Ten out of eleven questions to be done.(10x1=10 Marks)

Note: The combined word limit for both the passages will be 700-750 words.

Literature 20 Marks

III. Multiple Choice Questions based on two prose extracts, one each from the books Flamingo and Vistas, to assess comprehension and appreciation. Refer to the lines to answer questions based on the given extract. Any 2 out of 3 extracts to be done.(8x1=8)

IV. Multiple Choice Questions based on a poetry extract from the book Flamingo to assess comprehension, analysis and inference. Refer to the lines to answer questions based on the given extract. Any 1 out of 2 extracts to be done.(4x1=4)

VI. Text based questions to assess comprehension, analysis, inference and interpretation from the books Flamingo and Vistas. Eight out of ten questions to be done.(8x1=8)

PART B (SUBJECTIVE QUESTIONS) - 40 MARKS**Writing Section: 16 Marks**

Q1. Short writing task –Notice/Advertisement up to 50 words. One out of the two given questions to be answered.(3 Marks: Format : 1 / Content : 1 / Expression : 1).

Q2. Short writing task –Formal/Informal Invitation and Reply up to 50 words.One out of the two given questions to be answered.(3 Marks: Format : 1 / Content : 1 / Expression : 1)

Q3. Letters based on verbal/visual input, to be answered in approximately 120-150 words. Letter types include application for a job, Letters to the editor (giving suggestions or opinion on issues of public interest) . One out of the two given questions to be answered (5 Marks :Format: 1 / Content: 2 / Expression: 2)

Q4. Article/ Report Writing, descriptive and analytical in nature, based on verbal inputs, to be answered in 120-150 words. One out of the two given questions to be answered (5Marks:Format : 1 / Content : 2 / Expression : 2)

Literature Section: 24 Marks

Q6. Five Short answer type question, out of six, from Prose and Poetry from the book Flamingo, to be answered in 30-40 words. Questions should elicit inferential responses through critical thinking.(5x2=10)

Q7. Two Short answer type question ,out of three, from Prose (Vistas), to be answered in 30-40 words. Questions should elicit inferential responses through critical thinking. (2x2=4)

Q 8. One Long answer type question, from Prose/poetry (Flamingo), to be answered in 120-150 words to assess global comprehension and extrapolation beyond the text. Questions to provide evaluative and analytical responses using incidents, events, themes as reference points. Any 1 out of 2 questions to be done.(1x5=5)

Q.9 One Long answer type question, based on the chapters from the book Vistas, to be answered in 120-150 words to assess global comprehension and extrapolation beyond the text. Questions to provide evaluative and analytical responses using incidents, events, themes as reference points. Any 1 out of 2 questions to be done.(1x5=5)

Prescribed Books

- 1. Flamingo: English Reader published by National Council of Education Research and Training, New Delhi**
- 2. Vistas: Supplementary Reader published by National Council of Education Research and Training, New Delhi**

12. Links for extended learning: (Related to curriculum)

<https://www.successcds.net/cce-cbse/class-xii/english/>

<https://www.learncbse.in/ncert-solutions-for-class-12th-flamingo-english/>

https://www.google.com/search?q=www.student+niche.com&rlz=1C1CHBD_enIN699IN700&oq=wwwstudentniche&aqs=chrome.1.69i57j0.24417j0j7&sourceid=chrome&ie=UTF-8

PHYSICS

Senior Secondary stage of school education is a stage of transition from general education to discipline-based focus on curriculum. The present updated syllabus keeps in view that rigour and depth of disciplinary approach as well as the comprehension level of learners. Due care has also been taken that the syllabus is comparable to the international standards. Salient features of the syllabus include:

- Emphasis on basis conceptual understanding of the content.
- Emphasis on use of SI units, symbols, nomenclature of physical quantities and formulations as per international standards.
- Providing logical sequencing of units of the subject matter and proper placement of concepts with their linkage for better learning.
- Reducing the curriculum load by eliminating overlapping of concepts / content within the discipline and other disciplines.
- Promotion of process-skills, problem-solving abilities and applications of Physics concepts.
- helping students to learn physics by integrating art .

Besides, the syllabus also attempts to

- Strengthen the concepts developed at the secondary stage to provide firm foundation for further learning in the subject.
- Expose the learners to different processes used in Physics-related industrial and technological applications.
- Develop process-skills and experimental, observational, manipulative, decision making and investigatory skills in the learners.
- Promote problem solving abilities and creative thinking in learners.
- Develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines.

2. MONTH-WISE SYLLABUS

CHAPTER NUMBER	CHAPTER NAME	MONTH
1	Electric charges and Fields	APRIL
2	Electrostatic Potential and Capacitance	APRIL
3	Current Electricity	MAY

4	Moving Charges and Magnetism	MAY
5	Magnetism and Matter	MAY
6	Electromagnetic Induction	JULY
7	Alternating Current	JULY
8	Electromagnetic Waves	JULY
9	Ray optics and Optical instruments	AUGUST
10	Wave Optics	AUGUST ,SEPTEMBER
11	Dual Nature of Radiations and Matter	OCTOBER
12	Atoms	OCTOBER
13	Nuclei	NOVEMBER

14	Semiconductor electronics	NOVEMBER

3. Number of Worksheets planned per chapter/ Unit: one per chapter.

4. Syllabus for periodic tests

- Periodic -I (May)

Electric charges and Fields
Electrostatic Potential and Capacitance
Current Electricity
Moving Charges and Magnetism

- Periodic -II (September first week)

Moving Charges and Magnetism
Magnetism and Matter
Electromagnetic Induction
Alternating Current
Electromagnetic Waves
Ray optics and Optical instruments

Wave Optics**PRACTICALS**

The record to be submitted by the students

12 Experiments [with 6 from each section], to be performed by the students.

Record of at least 6 Activities [with 3 each from section A and section B], to be performed by the students. The Report of the project to be carried out by the students.

Evaluation Scheme

Time Allowed: Three hours Max. Marks: 30

Two experiments one from each section 7+7 Marks

Practical record [experiments and activities] 5 Marks

One activity from any section 3 Marks

Investigatory Project 3 Marks Viva on experiments,
activities and project 5 Marks

Total 30 marks

Experiments

SECTION-A

1. To determine resistivity of two / three wires by plotting a graph for potential difference versus current.
2. To find resistance of a given wire / standard resistor using metre bridge.
3. To verify the laws of combination (series) of resistances using a metre bridge.

OR

To verify the laws of combination (parallel) of resistances using a metre bridge.

4. To compare the EMF of two given primary cells using potentiometer.
5. To determine the internal resistance of given primary cell using potentiometer.
6. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
7. To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same.

OR

To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same.

8. To find the frequency of AC mains with a sonometer.

Activities 1. To measure the resistance and impedance of an inductor with or without iron core.

2. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.

3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. 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.

SECTION-B

Experiments

1. To find the value of v for different values of u in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex mirror, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between u and v or between $1/u$ and $1/v$.
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a travelling microscope.

7. To find refractive index of a liquid by using convex lens and plane mirror.
8. To draw the I-V characteristic curve for a p-n junction diode in forward bias and reverse bias.
9. To draw the characteristic curve of a zener diode and to determine its reverse breaks down voltage.

Activities

1. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
2. Use of multimeter to see the unidirectional flow of current in case of a diode and an LED and check whether a given electronic component (e.g., diode) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an LDR.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe polarization of light using two Polaroids.
6. To observe diffraction of light due to a thin slit.
7. To study the nature and size of the image formed by a (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).
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

Suggested Investigatory Projects

1. To study various factors on which the internal resistance/EMF of a cell depends.
2. To study the variations in current flowing in a circuit containing an LDR because of a variation in (a)

the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance). (b) the distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR.

3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equi convex lens (made from a glass of a known refractive index) and an adjustable object needle.

4. To design an appropriate logic gate combination for a given truth table.

5. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.

6. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.

7. To estimate the charge induced on each one of the two identical styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.

8. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.

9. To study the earth's magnetic field using a tangent galvanometer.

Full Syllabus in finals

Guidelines for Project Work:

1. Students are supposed to pick any ONE project.

2. The project should have a 10- 15 pages (approx) Write up along with a working model / investigatory/ Activity based etc, .

Mode of presentation and submission of the Project: At the end of the stipulated term, each student will present the work (with viva voce) to the examiner.

RUBRIC: PROJECT WORK

Assessment Parameter	Excellent	Competent	Needs Improvement	Remarks (if any)
1. Relevance of the Topic(3) 2. Knowledge Content/ Research work(6) 3. Presentation Technique(3) 4. Viva(8)	<p>*Topic selected holds relevance to the curriculum and allows exploration.</p> <p>*Content covered in the research work is relevant to the topic and provides extensive details</p> <p>*Presentation is orderly and coherent</p> <p>*Student is able to answer all the question correctly and confidently</p>	<p>*Topic selected holds relevance to the curriculum and allows exploration.</p> <p>*Content covered in the research work is relevant to the topic but provides limited details.</p> <p>*Presentation is orderly and coherent.</p> <p>*Students are able to answer most of the questions correctly but take a long time to answer</p>	<p>*Topic selected holds relevance to the curriculum and allows exploration.</p> <p>*Content covered in the research work though relevant to the topic but provides very limited or little details.</p> <p>*Presentation needs to be organised orderly.</p> <p>*Students are able to answer only a few questions completely correctly and in some cases needed cues and</p>	

		some.	prompts.	
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6.Chapter/ unit wise allocation of marks

		No. of Periods	Marks
Unit-I	Electrostatics	22	16
	Chapter-1: Electric Charges and Fields		
	Chapter-2: Electrostatic Potential and Capacitance		
Unit-II	Current Electricity	20	17
	Chapter-3: Current Electricity		
Unit-III	Magnetic Effects of Current and Magnetism	22	
	Chapter-4: Moving Charges and Magnetism		
	Chapter-5: Magnetism and Matter		
Unit-IV	Electromagnetic Induction and Alternating Currents	20	18
	Chapter-6: Electromagnetic Induction		
	Chapter-7: Alternating Current		
Unit-V	Electromagnetic Waves	04	18
	Chapter-8: Electromagnetic Waves		
Unit-VI	Optics	27	
	Chapter-9: Ray Optics and Optical Instruments		
	Chapter-10: Wave Optics		

Unit-VII	Dual Nature of Radiation and Matter	08	12
	Chapter-11: Dual Nature of Radiation and Matter		
Unit-VIII	Atoms and Nuclei	15	
	Chapter-12: Atoms		
	Chapter-13: Nuclei		
Unit-IX	Electronic Devices	12	7
	Chapter-14: Semiconductor Electronics: Materials, Devices and Simple Circuits		
Total		150	70

7. Question paper design: (Typology of questions with respective weightage)

Type Of Question	Number Of Questions	Total Weightage
OBJECTIVE TYPE (1 MARK)	20	20
VERY SHORT ANSWER I (2MARKS)	07	14
SHORT ANSWER II (3 MARKS)	07	21
LONG ANSWER(5 MARKS)	03	15
TOTAL		70

PRACTICAL		30
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8. Prescribed Books:

1. Physics Part-I, Textbook for Class XII, Published by NCERT
2. Physics Part-II, Textbook for Class XII, Published by NCERT
3. Laboratory Manual of Physics, Class XII Published by NCERT
4. The list of other related books and manuals brought out by NCERT (consider multimedia also).

9. Suggested Books (If Applicable)

1. Supplementary Reading Material in Physics, CBSE
2. NCERT Exemplar

10. Links for extended learning: (Related to curriculum) to be provided in classes

CURRICULUM

Unit I: Electrostatics**22 Periods****Chapter–1: Electric Charges and Fields**

Electric Charges; Conservation of charge, Coulomb's law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution.

Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field.

Electric flux, statement of Gauss's theorem and its applications to find fields due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

Chapter–2: Electrostatic Potential and Capacitance

Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field.

Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarisation, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor.

Unit II: Current Electricity**20 Periods**

Chapter–3: Current Electricity

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and nonlinear), electrical energy and power, electrical resistivity and conductivity, Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance.

Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's laws and simple applications, Wheatstone bridge, metre bridge.

Potentiometer - principle and its applications to measure potential difference and for comparing EMF of two cells; measurement of internal resistance of a cell.

Unit III: Magnetic Effects of Current and Magnetism and Magnetism

22 Periods Chapter–4: Moving Charges

Concept of magnetic field, Oersted's experiment.

Biot - Savart law and its application to current carrying circular loop.

Ampere's law and its applications to infinitely long straight wire. Straight and toroidal solenoids (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields, Cyclotron.

Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field;

moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Chapter–5: Magnetism and Matter

Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis, torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; earth's magnetic field and magnetic elements.

Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths, permanent magnets.

Unit IV: Electromagnetic Induction and Alternating Currents 20 Periods Chapter–6:

Electromagnetic Induction

Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction.

Chapter–7: Alternating Current

Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, power factor, wattless current.

AC generator and transformer.

Unit V: Electromagnetic waves**04 Periods Chapter–8: Electromagnetic****Waves**

Basic idea of displacement current, Electromagnetic waves, their characteristics, their Transverse nature (qualitative ideas only).

Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Unit VI: Optics**27 Periods****Chapter–9: Ray Optics and Optical Instruments**

Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism.

Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset.

Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Chapter–10: Wave Optics

Wave optics: Wavefront and Huygens principle, reflection and refraction of plane waves at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygens principle. Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light, diffraction due to a single slit, width of central maximum, resolving power of microscope and astronomical telescope, polarisation, plane polarised light, Brewster's law, uses of plane polarised light and Polaroids.

Unit VII: Dual Nature of Radiation and Matter

08 Periods

Chapter–11: Dual Nature of Radiation and Matter

Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light.

Matter waves-wave nature of particles, de-Broglie relation, Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained).

Unit VIII: Atoms and Nuclei

15 Periods

Chapter–12: Atoms

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.

Chapter–13: Nuclei

Composition and size of nucleus, Radioactivity, alpha, beta and gamma particles/rays and their properties; radioactive decay law.

Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.

Unit IX: Electronic Devices

12 Periods

Chapter–14: Semiconductor Electronics: Materials, Devices and Simple Circuits

Energy bands in conductors, semiconductors and insulators (qualitative ideas only)

Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier;

Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics, zener diode as a voltage regulator.

Typology of Questions	Total Marks	Approximate Percentage
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1	<p>Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.</p> <p>Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas</p>	27	38 %
2	<p>Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.</p>	22	32%

3	<p>Analysing: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations</p> <p>Evaluating Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.</p> <p>Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.</p>	21	30%
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Typology of Questions	Total Marks	Approximate Percentage
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3	<p>Analysing: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations</p> <p>Evaluating Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.</p> <p>Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.</p>	21	30%
	Total Marks	70	100

Note:

Internal Choice: There is no overall choice in the paper. However, there will be at least 33% internal choice.

BIOLOGY

The objectives of study of Biology is to encourage and enable students to:

- develop inquiring minds and curiosity about science and the natural world
- acquire knowledge, conceptual understanding and skills to solve problems and make informed decisions in scientific and other contexts
- develop skills of scientific inquiry to design and carry out scientific investigations and evaluate scientific evidence to draw conclusions
- communicate scientific ideas, arguments and practical experiences accurately in a variety of ways
- think analytically, critically and creatively to solve problems, judge arguments and make decisions in scientific and other contexts
- appreciate the benefits and limitations of science and its application in technological developments
- understand the international nature of science and the interdependence of science, technology and society, including the benefits, limitations and implications imposed by social, economic, political, environmental, cultural and ethical factors
- demonstrate attitudes and develop values of honesty and respect for themselves, others, and their shared environment.

- Develop well-defined abilities in cognitive, affective and psychomotor domains in children which augments the spirit of enquiry, creativity, objectivity and aesthetic sensibility.
 - engage with the processes of Science like observing, recording observations, drawing, tabulation, plotting graphs, etc.
 - Be effective in quantitative reasoning so as to occupy a more central place in the teaching and learning of Science.
 - to develop aesthetic values as students will be involved in learning about nature and drawing diagrams of various structures etc'
 - AIL project-modes of asexual reproduction will be drawn and colors will be done.
- The present syllabus has been around five broad themes viz. Reproduction of living organisms, Principle of Inheritance and variation, Biology in human welfare, Biotechnology and its application, Ecology and environment

2. MONTH WISE SYLLABUS Biology

Units	Name of the units	Chapters in the Unit	Month
6	Reproduction in Organisms	Chapter-1: Reproduction in Organisms	April

		Chapter-2: Sexual Reproduction in Flowering Plants Chapter-3: Human Reproduction Chapter-4: Reproductive Health	April April-May May
7	Genetics and Evolution	Chapter-5: Principles of Inheritance and variation Chapter-6: Molecular Basis of Inheritance Chapter-7: Evolution	May-July July July-August
2	Biology in Human Welfare	Chapter-8: Human Health and Diseases	August-September

		Chapter-9: Strategies for Enhancement in Food Production Chapter-10: Microbes in Human Welfare	October October
5	Biotechnology and its Applications	Chapter-11: Biotechnology - Principles and processes Chapter-12: Biotechnology and its Application	October November
4	Ecology and Environment	Chapter-13: Organisms and Populations Chapter-14: Ecosystem Chapter -15: Biodiversity and Conservation	November November November

		Chapter 16: Environmental Issues	December
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3. Number of worksheets planned per chapter-1 to 2

4. Syllabus for periodic tests-

Periodic I-May

chapter 1. Reproduction in Organisms

2. Sexual reproduction in Flowering Plants

3. Human Reproduction

4. Reproductive Health

Periodic II--September

5. Principles of inheritance and Variation

6. Molecular Basis of Inheritance

7. Evolution

8. Human Health and Disease

9. Strategies for Enhancement in Food Production

10. Microbes in Human Welfare

Practicals to be covered before September

(i) A. List of Experiments 60 Periods

1. Prepare a temporary mount to observe pollen germination.
2. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organism.
3. Study the presence of suspended particulate matter in air at two widely different sites.
4. Prepare a temporary mount of onion root tip to study mitosis.
5. Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch.
6. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.

B. Careful observation of the following (Spotting):

1. Flowers adapted to pollination by different agencies (wind, insects, birds).
2. Pollen germination on stigma through a permanent slide or scanning electron micrograph.
3. Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).

4. Meiosis in onion bud cell or grasshopper testis through permanent slides.
5. T.S. of blastula through permanent slides (Mammalian).
6. Mendelian inheritance using seeds of different colour/sizes of any plant.
7. Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and colour blindness.
8. Controlled pollination - emasculation, tagging and bagging.
9. Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, any fungus causing ringworm through permanent slides, models or virtual images. Comment on symptoms of diseases that they cause.
10. Two plants and two animals (models/virtual images) found in xeric conditions. Comment upon their morphological adaptations.
11. Two plants and two animals (models/virtual images) found in aquatic conditions. Comment upon their morphological adaptations.

Periodic III (November)

Full Syllabus

Practicals to be covered

1. Collect and study soil from at least two different sites and study them for texture, moisture content and water holding capacity
2. Study the plant population density by quadrat method.
3. Study the plant frequency by quadrat method.

PROJECT WORK One investigatory project has to be made that is related to syllabus. it should be of 10 to 15 pages . Diagrams preferably hand made.

6.CHAPTER WISE ALLOCATION OF MARKS

UNIT	NAME OF UNIT	PERIODS	MARKS
VI	Reproduction	30	14
VII	Genetics and Evolution	40	18
VIII	Biology in Human Welfare	30	14
IX	Biotechnology	30	10
X	Ecology	30	14

7. CURRICULUM FOR SESSION 2021-22

Unit-VI Reproduction

Chapter-1: Reproduction in Organisms

Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction - asexual and sexual reproduction; asexual reproduction - binary fission, sporulation, budding, gemmule formation, fragmentation; vegetative propagation in plants; events in sexual reproduction.

Chapter-2: Sexual Reproduction in Flowering Plants

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; outbreeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

Chapter-3: Human Reproduction

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

Chapter-4: Reproductive Health

Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods; medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT, AI (brief overview).

Unit-VII Genetics and Evolution

Chapter-5: Principles of Inheritance and Variation

Heredity and variation, Mendelian inheritance; deviations from Mendelism – incomplete dominance, codominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; linkage and crossing over; Sex determination - in human being, birds, grasshopper and honey bee; Mutation, Pedigree analysis, sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans –sickle cell anaemia, Phenylketonuria, thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Chapter-6: Molecular Basis of Inheritance

Structure of DNA and RNA; DNA packaging; Search for genetic material and DNA as genetic material; DNA replication; Central Dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; Human genome project; DNA fingerprinting.

Chapter-7: Evolution

Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); adaptive radiation; Biological evolution: Lamarck's theory of use and disuse of organs, Darwin's theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; a brief account of evolution; human evolution.

Unit-VIII Biology and Human Welfare

Chapter-8: Human Health and Diseases

Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

Chapter-9: Strategies for Enhancement in Food Production

Animal husbandry, Plant breeding, tissue culture, single cell protein.

Chapter-10: Microbes in Human Welfare

Microbes in food processing, industrial production, Antibiotics; production and judicious use, sewage treatment, energy generation and microbes as bio-control agents and bio-fertilizers.

Unit-IX Biotechnology and its Applications

Chapter-11: Biotechnology - Principles and Processes

Genetic Engineering (Recombinant DNA Technology).

Chapter-12: Biotechnology and its Application

Application of biotechnology in health and agriculture: genetically modified organisms - Bt crops; RNA interference, Human insulin, gene therapy; molecular diagnosis; transgenic animals; biosafety issues, biopiracy and patents.

Unit-X Ecology and Environment

Chapter-13: Organisms and Populations

Organisms and environment: Habitat and niche, abiotic factors, ecological adaptations; population interactions - mutualism, competition, predation, parasitism, commensalism; population attributes - growth, birth rate and death rate, age distribution.

Chapter-14: Ecosystem

Ecosystem: structure and function; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).

Chapter-15: Biodiversity and Conservation

Biodiversity - Concept, levels, patterns, importance; loss of biodiversity; biodiversity

conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.

Chapter-16: Environmental Issues

Air pollution and its control; water pollution and its control; agrochemicals and their effects; solid waste management; radioactive waste management; greenhouse effect and climate change impact and mitigation; ozone layer depletion; deforestation; case study exemplifying success story addressing environmental issue(s).

PRACTICALS

Time allowed: 3 Hours Max. Marks: 30

Evaluation Scheme Marks

One Major Experiment5

One Minor Experiment.....4

Slide Preparation..... 5

Spotting..... 7

Practical Record + Viva Voce Credit to the students.....4

Investigatory Project and its

Project and its Record + Viva Voce.....5

TOTAL MARKS OF PRACTICALS.....30

THEORY PAPER.....70

Section–A will have 14 questions of 1 mark each and 02 case-based questions.

⇒ Section–B will have 9 questions of 2 marks each.

⇒ Section–C will have 5 questions of 3 marks each

⇒ Section–D will have 3 questions of 5 marks each.

⇒ There will be no overall choice. However, internal choices will be provided in some questions.

CBSE Class 12 Biology Board Exam 2021: More Details

Competencies	
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Demonstrate Knowledge and Understanding	50%
Application of Knowledge / Concepts	30%
Analyse, Evaluate and Create	20%

- Typology of questions: VSA including MCQs, Assertion – Reasoning type questions; SA; LA- I; LA-II; Source-based/ Case-based/ Passage-based/ Integrated assessment questions.
- An internal choice of approximately 33% would be provided.

on–A will have 14 questions of 1 mark each and 02 case-based questions.

⇒ Section–B will have 9 questions of 2 marks each.

⇒ Section–C will have 5 questions of 3 marks each

⇒ Section–D will have 3 questions of 5 marks each.

⇒ There will be no overall choice. However, internal choices will be provided in some questions.

CBSE Class 12 Biology Board Exam 2021: More Details

Competencies	
Demonstrate Knowledge and Understanding	50%
Application of Knowledge / Concepts	30%
Analyse, Evaluate and Create	20%

● **Typology of questions: VSA including MCQs, Assertion – Reasoning type questions; SA; LA- I; LA-II; Source-based/ Case-based/ Passage-based/ Integrated assessment questions.**

● **An internal choice of approximately 33% would be provided.**

Unit-I(May)**Maximum Marks: 50****Chapters: Unit 1 (Reproduction in organisms)****Half Yearly (September)****Maximum Marks: 100****Chapters : Unit I, II,III****PRACTICALS****Time allowed: 3 Hours****Max. Marks: 30**

Evaluation Scheme	
One Major Experiment	5 Marks
One Minor Experiment	4 Marks
Slide Preparation	5 Marks
Spotting	7 Marks
Practical Record+Viva Voce	4 Marks
Project Record + Viva Voce	5 Marks

Total	30Marks
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A. List of Experiments**60 Periods**

1. Study pollen germination on a slide.
2. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity. Correlate with the kinds of plants found in them.
3. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organism.
4. Study the presence of suspended particulate matter in air at two widely different sites.
5. Study the plant population density by quadrat method.
6. Study the plant population frequency by quadrat method.
7. Prepare a temporary mount of onion root tip to study mitosis.
8. Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch.
9. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.

Note: Practicals to be completed by October**B. Study/observation of the following (Spotting)**

1. Flowers adapted to pollination by different agencies (wind, insects, birds).
2. Pollen germination on stigma through a permanent slide.
3. Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).
4. Meiosis in onion bud cell or grasshopper testis through permanent slides.

5. T.S. of blastula through permanent slides (Mammalian).
6. Mendelian inheritance using seeds of different colour/sizes of any plant.
7. Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and colour blindness.
8. Controlled pollination - emasculation, tagging and bagging.
9. Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, any fungus causing ringworm through permanent slides or specimens. Comment on symptoms of diseases that they cause.
10. Two plants and two animals (models/virtual images) found in xeric conditions. Comment upon their morphological adaptations.
11. Two plants and two animals (models/virtual images) found in aquatic conditions. Comment upon their morphological adaptations.

Note: Spotting to be done time to time along with the theory

General Guidelines

- The practical examination will be of two hour duration.
- A separate list of ten experiments is included here.
- The written examination in practicals for these students will be conducted at the time of practical examination of all other students.
- The written test will be of 30 minutes duration.

- The question paper given to the students should be legibly typed. It should contain a total of 15 practical skill based very short answer type questions. A student would be required to answer any 10 questions.
- A writer may be allowed to such students as per CBSE examination rules.
- All questions included in the question paper should be related to the listed practicals. Every question should require about two minutes to be answered.
- These students are also required to maintain a practical file. A student is expected to record at least five of the listed experiments as per the specific instructions for each subject. These practicals should be duly checked and signed by the internal examiner.
- The format of writing any experiment in the practical file should include aim, apparatus required, simple theory, procedure, related practical skills, precautions etc.
- Questions may be generated jointly by the external/internal examiners and used for assessment.
- The viva questions may include questions based on basic theory / principle / concept, apparatus / materials / chemicals required, procedure, precautions, sources of error etc.

ECONOMICS

1. Objectives

1. Understanding of some basic economic concepts
2. Development of economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.
3. Realization of learners' role in nation building and sensitivity to the economic issues that the nation is facing today.
4. Development of understanding that there can be more than one view on any economic issue and necessary skills to argue logically with reasoning.
5. Efficacy of Economic Policies in maintaining stability in various spheres of the economy.
6. To provide opportunities to use information and communication technologies to facilitate their learning process.
7. To acquire analytical skills to observe and understand the economic realities
8. To acquire analytical skills to observe and understand the economic realities.

2. LEARNING OUTCOMES :

Learners are able to relate to real life economy on macroeconomic front

Learners are able to understand the need, relevance and impact of various macroeconomic policies or tools.

Learners are in a position to appreciate the role of agencies like RBI & NABARD and other institutions in the economy

Learners develop an insight into Indian Economic set up, its infrastructure and various other economic issues.

Learners are in a position to adapt various practices in consonance with sustainable development

4. Month wise division of syllabus

Unit No.	Name of the Unit	Month
1. (PART A- INTRODUCTORY MACROECONOMICS)	National Income and Related Aggregates	APRIL
2. (PART A -INTRODUCTORY MACROECONOMICS)	Money and Banking	MAY
3. (PART A- INTRODUCTORY MACROECONOMICS)	Determination of Income and Employment	MAY & JULY
4. (PART A- INTRODUCTORY MACROECONOMICS)	Government Budget and the Economy	AUGUST
5. (PART A -INTRODUCTORY MACROECONOMICS)	Balance of Payments	AUGUST
6. (PART B - INDIAN ECONOMIC DEVELOPMENT)	Development policies & experience(1947-1990) & Economic Reforms since 1991	AUGUST & OCTOBER
7. (PART B- INDIAN ECONOMIC DEVELOPMENT)	Current Challenges Facing Indian Economy	OCTOBER & NOVEMBER
8. (PART B - INDIAN ECONOMIC DEVELOPMENT)	Development Experience of India-A Comparison with neighbours	NOVEMBER

3.Number of Worksheets planned per chapter/ Unit: minimum one each per chapter.

4.Syllabus for periodic tests

- Periodic -I (May)

UNIT 1 & UNIT 2

- Periodic -II (September first week)

UNIT 3 TO 6 to be covered & UNIT 1 to 6 for testing

- Periodic -III (November)

UNIT 7& 8 to be covered (Full Syllabus to be evaluated in PAT)

Full Syllabus in Pre Board examination

5.PROJECT WORK:

One compulsory project to be done by every student from a list of Topics/ Themes given by the CBSE in Economics curriculum,2021-22 and decided in consultation with the teacher. Students are guided to refer to the curriculum & detailed discussions and guidelines will be delivered in the c;assroom.

Guidelines for Project Work:

1. Topic/Theme: Students are supposed to pick any ONE of the two suggested projects.

2.Volume: The project should be of 30-40 pages (approx), hand-written.

3.Mode of presentation and submission of theProject: At the end of the stipulated term, each student will present the work in the Project File (with viva voce) to the external examiner.

4.Essential Art Integration: Learners will integrate one or other form of art in the project work ranging from use of pencils, crayons, different kinds of paper surfaces, collage and infographic etc.

Marking Scheme for Project Work:

S.No.	Heading	Marks Allotted

1	Relevance of the topic	3
2	Knowledge Content/Research Work	6
3	Presentation Technique	3
4	Viva	8
	TOTAL	20

RUBRIC: PROJECT WORK

Assessment Parameter	Excellent (18-20)	Competent (13-17)	Needs Improvement(8-12)	Remarks (if any)
1.Relevance of the Topic(3) 2.Knowledge Content/ Research work(6) 3.Presentation Technique(3) 4. Viva(8)	*Topic selected holds relevance to the curriculum and allows exploration. *Content covered in the research work is relevant to the topic and provides extensive details *Presentation is orderly and coherent *Student is able to answer all the question correctly and confidently	*Topic selected holds relevance to the curriculum and allows exploration. *Content covered in the research work is relevant to the topic but provides limited details. *Presentation is orderly and coherent. *Students is able to answer most of the questions correctly but took long time to answer some.	*Topic selected holds relevance to the curriculum and allows exploration. *Content covered in the research work though relevant to the topic but provides very limited or little details. *Presentation needs to be organised orderly. *Students is able to answer only a few questions completely correct and in some cases needed cues and prompts.	

6.Chapter/ unit wise allocation of marks

Unit	Allocation of Marks
1.National Income and Related Aggregates	10
2. Money and Banking	06
3. Determination of Income and Employment	12
4. Government Budget and the Economy	06
5. Balance of Payments	06
6. Development policies & experience(1947-1990) & Economic Reforms since 1991	12
7. Current Challenges Facing Indian Economy	22
8. Development Experience of India-A Comparison with neighbours	06
PROJECT WORK	20

7. Question paper design: (Typology of questions with respective weightage)

Type Of Question	Number Of Questions	Total Weightage
OBJECTIVE TYPE (1 MARK)	12	12
Case Based Questions	02 (4 mark each split into 4 MCQs)	08
SHORT ANSWER I (3 MARK)	04	12
SHORT ANSWER II	06	24

(4 MARK)		
LONG ANSWER (6 MARK)	04	24
TOTAL		80
PROJECT WORK		20

8. Prescribed Books:

1. Indian Economic Development, NCERT
2. Introductory Macroeconomics, NCERT

9. Suggested Books

1. Supplementary Reading Material in Economics, CBSE
2. Introductory Macroeconomics, by V.K. Publication

10. Links for extended learning: (Related to curriculum)

www.worldbank.org

www.un.org

www.ilo.org

www.planningcommission.nic.in

<https://diksha.gov.in>.

<https://www.indiabudget.gov.in> > economicsurvey

BUSINESS STUDIES

Road Map for Classes XII

Subject: Business Studies

1. Objectives

- 1 To acquire knowledge about the key concept areas.
- 2 Students shall develop the ability to integrate the knowledge with economic world.
- 3 To develop the ability to understand the management process and its relation in meeting organizational objectives.
- 4 To develop the communication skill both, oral and written.
- 5 To recognize the need for specialization required, need for understanding management principles.
- 6 Environmental factors and the influence of internal and external forces on business organisation.
- 7 Learning the practical implication of the subject by preparing the project file.

2. Learning Outcomes

1. Students will be able to appreciate the need of management for an organization to survive, grow and expand.
2. Students will develop the knowledge and understanding for various concepts, principles and techniques of management.
3. Students will develop Problem Solving and Critical Thinking skills on the various case study based questions/problems.
5. Students will be able to show creativity through Art Integration in the subject of Accountancy.

3. Month wise division of syllabus

Month	Unit/ Lesson no.	Lesson Name	Weight Age
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March & April	Unit 1 L 1 L 2 L 3	Nature & Importance of Management Principles of Management Business Environment	(16)
May	Unit 5 L 11	Marketing Management	(15)
July	Unit 2 L 4 L 5	Planning Organizing	(14)
August & September	Unit 3 L 6 L 7 L 8	Staffing Directing Controlling	(20)
October	Unit 4 L 9 L 10	Financial Management Financial Markets	(15)
November	Unit 5 (contd.) L 12	Consumer Protection	

4. Number of Worksheets planned per chapter: One worksheet per chapter.

5. Syllabus for periodic tests

- Periodic -I (May)

Unit 1 (L: 1, 2 , 3) Unit 5 (L: 11)

- Periodic -II (September first week)

Unit 1, 2 & 3 (L: 1, 2, 3, 4, 5, 6, 7 & 8) Unit 5 (L: 11)

- Periodic -III (December)

Full syllabus for PAT

6. Project Work: Students have to prepare a project file as per the CBSE guidelines. The file should comprise of project on any one topic from the following;

(a) Elements of Business Environment.

(b) Principles of Management.

(c) Stock Exchange

(d) Marketing

*** Art integration will be an integral part of the Project File prepared through the use of graphs, colours, collage etc.**

Marking Scheme for Project Work:

(a) Initiative, cooperativeness and participation (2 marks)

(b) Creativity in presentation (2marks)

(c) Content, observation and research work (4 marks)

(d) Analysis of situation (4 marks)

(e) Viva (8 marks)

Rubrics: Project Work

Assessment Parameters	Excellent (18- 20 marks)	Competent (13-17 marks)	Needs Improvement (8- 12 marks)
<ul style="list-style-type: none"> Content Coverage Presentation Interpretation & Conclusion Originality & Quality of work 	<p>The project is prepared as per the guidelines and the information gathered is relevant.</p> <p>All parts of the project file, are written in sequence with minute details required. The project file is presented neatly with required graphs/ pie charts/ working notes/ format etc. The interpretation made and conclusions drawn in specific projects are accurate and framed nicely in the boxes as required. The project work is the original work of the student. In viva voce a student's knowledge and understanding is reflected with the research actually conducted by him or her.</p>	<p>The project is prepared as per the guidelines and the information gathered is relevant.</p> <p>Proper sequence is adopted but few minute yet relevant details are missing.</p> <p>Presentation of project file is not impressive.</p> <p>The interpretation is made but few aspects are missing. Conclusions drawn are not accurate.</p> <p>The project is prepared by the student with individual or group efforts. He/ she is not able to answer the questions effortlessly regarding the project in viva voce.</p>	<p>The project is prepared as per the guidelines and the information gathered is relevant.</p> <p>Sequence is not maintained and some parts/ steps are missing or incorrect.</p> <p>Presentation is not neat and accurate.</p> <p>Interpretation and conclusions are either missing or not accurate.</p> <p>The project is the original work of analysis & interpretation done by the student will be questionable if he/ she is not able to answer all the questions.</p>

7. Question paper design:

Type of Question	No. of Question	Total Weightage
Very short answer type carrying 1 mark	20	20
Short answer type- I carrying 3 marks	04	12
Short answer type- II carrying 4 marks	06	24
Long answer type- I carrying 6 marks	04	24
	34	80

10. Prescribed Books:**NCERT Book 1 and 2****11. Suggested Books : Textbook by SubhashDey****12. Links for extended learning:****www.edustud.nic.in****cbseacademic.nic.in**

ACCOUNTANCY

1. Objectives

- 1 To acquire knowledge and develop competency in the Financial Accounting.
- 2 Students shall develop the ability to identify and evaluate accounting problems and arrive at reasoned conclusions.
- 3 To develop the ability to utilize financial information to analyse and interpret results thereof using different analytical tools.
- 4 To develop skill to communicate financial results.
- 5 To recognize ethical, professional and regulatory issues in accounting.
- 6 Learning the practical implication of the subject accountancy by preparing the project file.

4. Learning Outcomes

1. Students will be able to appreciate the accounting for both Not- for Profit and Profit making Organisations.
2. Students will develop the knowledge and understanding for accounting for Not- for Profit Organisation, Partnership and Company.
3. Students will develop Analytical and Critical Thinking skills with the ability to analyse financial statements of a company.
4. Students will develop the appreciation for true and fair presentation of financial information.
5. Students will be able to show creativity through Art Integration in the subject of Accountancy.

5. Month wise division of syllabus

Lesson No./Topic	Name of the lesson	Month
Unit 1		

L -1	Accounting for Not- for- Profit Organisations	March
Unit 2		
L -1	Accounting for Partnership Firms- Fundamentals	April
L -2	Goodwill- Nature & Valuation	
L -3	Change in Profit Sharing Ratios	May
L -4	Admission of a Partner	
L -5	Retirement & Death of a Partner	July
L -6	Dissolution of Partnership Firm	
	Accounting for Share Capital	
Unit 3	Issue of Debentures	August
L -7	Redemption of Debentures	
L -8	Financial Statements of a Company	
L -9	Analysis of Financial Statements of a Company	
	Comparative & Common Size Statements	
Unit 4	Ratio Analysis	
L -1	Cash Flow Statement	October
L -2		
L -3		
L -4		
Unit 5		November
L -5		

3. Number of Worksheets planned per chapter: One worksheet per chapter.

4. Syllabus for periodic tests

- Periodic -I (May)

Unit 1 & Unit 2 (L -1, 2, 3 & 4)

- Periodic -II (September first week)

Unit 1, 2 & 3

- Periodic -III (December)

Full syllabus for PAT

5. Project Work: Students have to prepare a project file as per the CBSE guidelines. The file should comprise of

*** One specific project on any company with its brief introduction, list of Board of Directors, analysis of one company using any tool of analysis of financial statements.**

*** Art integration will be an integral part of the Project File prepared through the use of graphs, colours, collage etc.**

Marking Scheme for Project Work:

Project file: 4 marks

Written test: 12 marks (based on Ratio Analysis & Cash Flow Statement)

Viva voce: 4 marks

Rubrics: Project Work

Assessment Parameters	Excellent marks) (18- 20	Competent marks) (13-17	Needs Improvement (8- 12 marks)
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<ul style="list-style-type: none"> • Content • Coverage • Presentation • Interpretation & Conclusion • Originality & Quality of work 	<p>The project is prepared as per the guidelines and the information gathered is relevant. All parts of the project file (3), are written in sequence with minute details required. The project file as well as written test is presented neatly with required graphs/ pie charts/ working notes/ format etc. The interpretation made and conclusions drawn in specific project is accurate and framed nicely in the boxes as required. The project work is the original work of the student. In viva voce a student's knowledge and understanding is reflected with the research actually conducted by him or her.</p>	<p>The project is prepared as per the guidelines and the information gathered is relevant. Proper sequence is adopted but few minute yet relevant details are missing.</p> <p>Presentation of project file is not impressive. Required formats are with errors.</p> <p>The interpretation is made but few aspects are missing. Conclusions drawn are not accurate.</p> <p>The project is prepared by the student with individual or group efforts. He/ she is not able to answer the questions effortlessly regarding the project in viva voce.</p>	<p>The project is prepared as per the guidelines and the information gathered is relevant. Sequence is not maintained and some parts/ steps are missing or incorrect.</p> <p>Presentation is not neat and accurate. Mistakes and wrong attempt of written test.</p> <p>Interpretation and conclusions are either missing or not accurate.</p> <p>The project is the original work of analysis & interpretation done by the student will be questionable if the he/ she is not able to answer all the questions.</p>
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6. Chapter/ unit wise allocation of marks

Chapter/ Unit	Allocation of Marks
Part A: Accounting for Not-for-Profit Organisation Unit 1. Financial Statements of NPO Unit 2. Accounting for Partnership Firms Unit 3. Accounting for Companies	60 (10) (30) (20)
Part B: Financial Statement Analysis Unit 4. Analysis of Financial Statements Unit 5. Cash Flow Statement	20 (12) (08)
Part C: Project Work	20

9. Question paper design:

Type of Question	No. of Question	Total Weightage
Very short answer type carrying 1 mark	20	20
Short answer type- I carrying 3 marks	02	06
Short answer type- II carrying 4 marks	05	20
Long answer type- I carrying 6 marks	03	18
Long answer type-II carrying 8 marks	02	16

10. Prescribed Books:**Accountancy- I****Accountancy-II****11. Suggested Books : by T.S. Grewal (Sultan Chand & Sons)****12. Links for extended learning:**

www.tsgrewal.com, www.dkgoel.com

MATHS

The broad objectives of teaching of mathematics at secondary stage are to help the learners to

- i) consolidate the Mathematical knowledge and skills acquired at the middle stage;
- ii) to develop positive ability to think, analyze and articulate logically;
- iii) to develop interest in Mathematics as problem solving tool in various fields;
- iv) to acquaint students with different aspects of Mathematics in daily life;
- v) to develop an interest in students to study Mathematics as a discipline;
- vi) to perform mathematical operations and manipulations with confidence.
- vii) to develop speed and accuracy in Mathematical skills.
- viii) to develop investigative skills in Mathematics.
- ix) to appreciate the usefulness, power and beauty of Mathematics.
- x) to develop abstract, logical and critical thinking upon their work and the work of others.

MONTHWISE SPLIT-UP SYLLABUS

LESSON NO.	TOPIC	MONTH
3	Matrices	April
4	Determinants	April
5	Continuity and differentiability	May
6	Application of derivatives Ex 6.1 to 6.3	May

6	Exercise 6.4,6.5 and Miscellaneous exercise on chapter 6	July
7	Integration	July
8	Application of Integration	August
9	Differential equation	August
12	Linear Programming	August

10	Vector Algebra	October
11	Three Dimensional Geometry	October
13	Probability	November
1	Inverse Trigonometric Functions	November
2	Relations And Functions	November

UNIT TEST 1 (MAY END)

M.M-40

NAME OF CHAPTER

- 1. MATRICES (CH-3)**
- 2. DETERMINANTS (CH-4)**
- 3. CONTINUITY AND DIFFERENTIABILITY (CH-5)**
- 4. APPLICATION OF DERIVATIVES (CH6)**

Practical to be covered before periodic 1

- to verify Rollle's theorem
- to construct an open box of maximum volume from a given rectangular sheet by cutting equal square pieces from each corner
- to verify that amongst all the rectangles of same perimeter the square has maximum area

SEMESTER 1 (MID-SEPTEMBER)

M.M-80

NAME OF CHAPTER

- 1. INTEGRATION (CH-7)**
- 2. APPLICATION OF INTEGRATION (CH-8)**
- 3. DIFFERENTIAL EQUATIONS (CH-9)**
- 4. LINEAR PROGRAMMING (CH-12)**

***TOPICS COVERED IN UNIT 1 WILL ALSO BE INCLUDED IN SEMESTER 1**

UNIT TEST 2 (NOVEMBER END)

M.M-80

NAME OF CHAPTER

- 1. VECTORS (CH-10)**
- 2. 3D GEOMETRY (CH-11)**
- 3. PROBABILITY (CH-13)**
- 4. INVERSE TRIGONOMETRIC FUNCTIONS (CH-2)**
- 5. RELATIONS AND FUNCTIONS (CH-1)**

Practicals to be covered before December

- to evaluate The Definite Integration as a limit of sum and verify it by actual integration
- to locate the points to given coordinates in space ,measure the distance between two points in the space and then to verify the distance using distance formula.
- to demonstrate the equation of plane in normal form.
- to explain the computation of conditional probability of a given event A, when event B has already occurred ,through an example of throwing a pair of dice.
- to verify that the relation R in the set of all lines in a plane is an equivalence relation.
- to demonstrate a function which is one one onto and neither one one nor onto

Full Syllabus to be done for semester 2**General Instructions :****ANNUAL EXAMINATION : M.M 80**

UNIT :	NAME OF CHAPTERS	MARKS
I	RELATIONS AND FUNCTIONS Relations and function Inverse trigonometry	08
II	ALGEBRA Matrices determinants	10
III	CALCULUS Continuity and differentiability Applications and derivatives Integrals Applications of integrals Differential Equations	35

IV	VECTORS AND 3D GEOMETRY	
	Vectors	14
	3D Geometry	
V	LINEAR PROGRAMMING	05
VI	PROBABILITY	08
TOTAL MARKS		80
INTERNAL ASSESSMENT		20
Periodic test (best 2 out of 3 test schedule)		10
_____mathematics activities_____		____+10
<u>One compulsory project of choice of students from curriculum to be done by every student</u>		
<u>One worksheet from each chapter</u>		
RUBRIC IN MATHEMATICS ON PROJECT WORK		
	BEGINNING	DEVELOPING SATISFACTORY OUTSTANDING RATING

	1	2	3	4	
Problem Solving	Little or no understanding of the problem is evidenced.	Numerous errors when solving problems.	Few errors when solving problems.	No errors when solving problems.	_____
Math Content	Demonstrates little or no knowledge or application of math skills.	Demonstrates a limited knowledge and application of math skills.	Demonstrates a general knowledge and application of math skills.	Demonstrates a clear knowledge and application of math skills.	_____
Math Communication	Inaccurately communicates solutions to problems and concepts.	Limited communication of solutions to problems and concepts.	Satisfactorily communicates solutions to problems and concepts.	Accurately communicates solutions to problems and concepts.	_____
Presentation	The reader is unable to follow the steps taken in the solution.	Solution is difficult to follow at times.	Solution is presented in a logical manner.	Solution is presented in an easy follow step-by-step model.	_____
Use of Mathematical Terminology	No mathematical terminology is used or attempted.	Some mathematical terminology is presented, but not correctly used.	Mathematical terminology correctly used.	Mathematical terminology is prevalent and used correctly.	_____
				Total:-----	_____

M. M. 80**QUESTION PAPER DESIGN**

Total questions		38	
One mark questions		16	
Case study based			
(4marks each)	2		
Two marks questions		10	
Three marks questions		7	
Five marks questions		3	
Total marks	80		
a. Remembering and understanding based			20 + 35 = 55%
b. Application based		25%	
c. Higher Order Thinking skills based			10%
d. Evaluations		10%	
TOTAL		100%	

PHYSICAL EDUCATION

1. Objectives

PE is “to educate students through physical activities”. It aims to develop students’ physical competence and knowledge of movement and safety.

1. To understand the meaning of physical education and understand the value of physical education and its relationship to a healthy, active lifestyle.
2. Develop motor skills, acquire necessary knowledge through physical activities.
3. Acquire good health, physical fitness and bodily coordination through participating regularly in physical activity.
4. Helps them to understand the importance of yoga and knowledge of how to lead a healthy living and how to improve our concentration, creativity.
5. • promote desirable moral behaviours, cooperation in communal life, ability to make decisions, and the appreciation of aesthetic movement.
6. Helps to develop Sports-related Values and Attitudes.
7. Promote leadership qualities.

1. Month wise division of syllabus

Lesson No./Topic	Name of the lesson	Month
9	Psychology & sports	April
5	Children & women in sports	April
4	Physical Education & Sports for CWSN (Children With Special Needs - Divyang)	May

1	Planning in sports	May
2	Sports & nutrition	May
3	Yoga & Lifestyle	July
6	Test & Measurement in Sports	August
7	Physiology & Injuries in Sports	September
8	Biomechanics & Sports	October
10	Training in Sports	November

3.Syllabus for periodic tests

- Periodic -I (May)

9,5,4,1

- Periodic -II (September first week)

9,5,4,1,2,3

- Periodic -III (November(7th to 12th) (Decemberfor rest of the classes)

6,7,8,10

4.Chapter/ unit wise allocation of marks

Unit no.	Chapter/ Unit	Allocation of Marks
1.	Planning in sports	7
2.	Sports & nutrition	10

3.	Yoga & Lifestyle	6
4.	Physical Education & Sports for CWSN (Children With Special Needs - Divyang)	5
5.	Children & women in sports	6
6.	Test & Measurement in Sports	6
7.	Physiology & Injuries in Sports	8
8.	Biomechanics & Sports	7
9.	Psychology & sports	7
10.	Training in Sports	8
	Total	70

5. Practical

SN	PRACTICAL NAME	MARKS
1	Physical Fitness Test	6
2	Proficiency in Games and Sports (Skill of any one Game of choice from the given list*)	7
3	Yogic Practices	7
4	Record File **	5
5	Viva Voce (Health/ Games & Sports/ Yoga)	5
	Total	30

6. Question paper design: (Typology of questions with respective weightage)

http://cbseacademic.nic.in/web_material/CurriculumMain20/SrSecondary/PhysicalEducation.pdf

7. Prescribed Books:

- SP Publisher

8. Suggested Books (If Applicable)

- RP publishers
- Vishwash publisher

9. Links for extended learning: (Related to curriculum)**10. Art integrated project related to your game.**

INFORMATICS PRACTICES

1. Objectives

Students should be able to :

1. Use, develop & debug python programs independently.
2. Develop the logic for any given problem by means of flow diagrams.
3. Understand aggregation operations, descriptive statistics, and re-indexing columns in a Data Frame.
4. Apply functions row-wise and element-wise on a Data Frame.
5. Understand basic software engineering: models, activities, business use-case diagrams, and version

control systems.

- 6.** Store data in RDBMS (that forms the backend of any software).
- 7.** Retrieve data earlier stored in a database using an RDBMS.
- 8.** Connect a Python program with a SQL database, and learn aggregation functions in SQL.
- 9.** Have a clear understanding of cyber ethics and cybercrime. Understand the value of technology in societies, gender and disability issues, and the technology behind biometric ids.

10. Month wise division of syllabus

Lesson No./Topic	Name of the lesson	Month
Unit 1: Data Handling	Numpy: 1D array, 2D array Arrays: slices, joins, and subsets Arithmetic operations on 2D arrays Covariance, correlation and linear regression	April
	Python Pandas:I CSV File Handling	April
	Data Handling using Pandas II	May & July

	Plotting with Python:Data Visualisation · Plot bar graphs, histograms, frequency polygons, box plots, and scatter plots.	
Unit 2: Database Query using SQL	SQL	August & September
Unit 3:Computer Networks	Computer Networks	October
Unit 4: Societal Impact	Societal Impact	November

11. Chapter wise Activities(miscellaneous activities other than the three enrichment activities to be taken up during the teaching learning process): Give Details in *brief* as per the headings below:

Name of the Chapter	Name of the activity	Learning Objectives	Learning outcomes	Mode (Individual /pair/group)	Methodology /Procedure	Skills developed
Unit 1: Data Handling	<ul style="list-style-type: none"> Use map functions to convert all negative numbers in a Data Frame to 	Applying various functions present in python library	Efficient use of inbuilt functions	Individual/ Group of two	Hands on	Programming Skills

	<p>the mean of all the numbers.</p> <ul style="list-style-type: none">• Consider a Data Frame, where each row contains the item category, item name, and expenditure.• Group the rows by the category, and print the total expenditure per category.• Given a Series, print all the elements that are above the 75th percentile.• Given a day's worth of stock market data, aggregate it. Print the highest, lowest,					
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	<p>and closing prices of each stock.</p> <ul style="list-style-type: none"> Given sample data, plot a linear regression line. Take data from government web sites, aggregate and summarize it. Then plot it using different plotting functions of the PyPlot library. 					
Unit 3: Data Management	<p>Find the min, max, sum, and average of the marks in a student marks table.</p> <p>Find the total</p>	<p>Create a summary of various transactions stored in a database for decision making and storing</p>	<p>Decision making strategy</p> <p>Linking an Excel file for data storage and retrieval</p>	Individual	Hands on	<p>Programming Skills and Data analytical skills</p>

	<p>number of customers from each country in the table (customer ID, customer Name, country) using group by.</p> <p>Write a SQL query to order the (student ID, marks) table in descending order of the marks.</p> <p>Integrate SQL with Python by importing MYSQL dB</p>	the data in an excel file	for analysis.			
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3 (b) Assessment parameters & Rubrics for respective Activity:

Rubrics for Unit 1 to 3 (Programming)

Criteria				
Excellent	Very Good	Good	Fair	Needs improvement

Program executes correctly with no syntax or runtime errors	Program executes with a single error and minor (easily fixed error)	Program executes with two or three minor errors	Many errors occur while compiling the program.	Program does not execute
Program displays correct output with no errors	Error in only one output value rest of the other program works fine.	Output has multiple errors	Output is incorrect	Not able to compile and run the program
Program displays many other minute details of the program along with the required output.	Program displays minimally expected output	Minor display errors in the output i.e. few output values are not as desired.	Program does not display the required output	Output is poorly designed
Program is logically well designed	Program has slight logic errors that do not significantly affect the results	Program has significant logic errors	Program has many significant logic errors	Program is incorrect
Program is stylistically well designed . Program is well documented	Few inappropriate design choices (i.e. poor variable names, improper indentation). Missing one required comment	Several inappropriate design choices (i.e. poor variable names, improper indentation) Missing two or more required comments	Improper design choices with insufficient variables and their names. Most of the documentation	Program is poorly written. All of the documentation is missing

			missing.	
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4. Number of Worksheets planned per chapter: 1

5. Syllabus for periodic tests

- Periodic -I (May) : 40% of the syllabus

Unit 1: Python Pandas-I & Python Pandas-II

- Periodic -II (September first week) 80% of the syllabus

Unit 1: Python Pandas-I & Python Pandas-II

Data Visualisation

Unit 2: Database Query using SQL

100% of the syllabus

- Periodic -III (November)

Unit 1: Python Pandas-I & Python Pandas-II

Data Visualisation

Unit 2: Database Query using SQL

Unit 3: Computer Networks

Unit 4: Societal Impact

6.(a) Enrichment Activity

Minimum One activity per periodic to be given with details as under:

Name of the activity	Learning Objectives	Learning Outcomes	Mode (Individual /pair/group)	Methodology /Procedure	Skills developed
P I	Take a sample database of a company and design its comparative analytics. Also represent the analytics in a graphical manner	Learn Data Analytics using graphical representation methods in Python	Individual	As learnt in classroom	Data Analytics
P II	The aim here is to find a real world problem that is worthwhile to solve. Students are encouraged to visit local businesses and ask them about the problems	Employing Programming skills to develop a software beneficial for the society as a whole	Group of 2 or 3	Based on the concepts learnt in classroom and Hands on	Programming Skills

	<p>that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. Students can be extremely creative here. They can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their</p>				
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	disabled fellow students, and mobile applications				
P III	Create a database to interface with python coding	Backend Application	Group of two	Interactive session and Hands on	Data Analysis and retrieval

7.(b) Assessment parameters & Rubrics for respective Enrichment Activity:

Criteria for PI, PII & PIII				
Excellent	Very Good	Good	Fair	Needs improvement
Program executes correctly with no syntax or runtime errors	Program executes with a single error and minor (easily fixed error)	Program executes with two or three minor errors	Many errors occur while compiling the program.	Program does not execute
Program displays correct output with no errors	Error in only one output value rest of the other program works fine.	Output has multiple errors	Output is incorrect	Not able to compile and run the program
Program displays many other minute details of the program along with the required	Program displays minimally expected output	Minor display errors in the output i.e. few output values are not as desired.	Program does not display the required output	Output is poorly designed

output.				
Program is logically well designed	Program has slight logic errors that do not significantly affect the results	Program has significant logic errors	Program has many significant logic errors	Program is incorrect
Program is stylistically well designed . Program is well documented	Few inappropriate design choices (i.e. poor variable names, improper indentation). Missing one required comment	Several inappropriate design choices (i.e. poor variable names, improper indentation) Missing two or more required comments	Improper design choices with insufficient variables and their names. Most of the documentation missing.	Program is poorly written. All of the documentation is missing

8. Chapter/ unit wise allocation of marks

Unit No	Unit Name	Marks
1.	Data Handling	30
2.	Database Query using SQL	25
3.	Computer Networks	7
4.	Societal Impact	8

5.	Practicals	30
	Total	100

9. Question paper design: (Typology of questions with respective weightage)

12. Prescribed Books

Informatics Practices by Sumita Arora

13. Suggested Books (If Applicable)

- The Complete reference PYTHON **McGraw Hills**
- Let Us Python

12. Links for extended learning: (Related to curriculum)

CHEMISTRY

1. Objectives

Chemistry is a central subject of science. It is also closely related to daily life. The broad aims are to help students to

1. acquire some knowledge of the empirical world.
2. acquire an ability to observe accurately and objectively.
3. acquire an ability to solve problem.
4. acquire an ability to think scientifically, independently and to make rational discussion.
5. acquire an ability to communicate , using the language of chemistry.
6. develop an appreciation of chemistry and its application in daily life.
7. promote an awareness of the social, economic, environmental and technological implication of chemistry.
8. To encourage students to take an active part in class.
9. To encourage students to develop curiosity and a spirit of enterprise.
10. To teach good laboratory practice and skills.
11. To teach students to be aware of the safety of oneself and others in the laboratory and be committed to safe practices in daily life.
12. To teach students to analyze data from experiments or from other sources.
13. To acquire students a readiness in becoming responsible citizens in a changing world.
14. To provide students with some insight into future career prospect in the fields related to Chemistry

3. Month wise division of syllabus

Lesson No./Topic	Name of the lesson	Month
1	Solid state	April
2	Solutions	April
3	ElectroChemistry	April
4	Chemical Kinetics	May
5	Surface Chemistry	May
6	General principles and processes of isolation of elements	July
10	Haloalkanes and Haloarenes	July
11	Alcohol, Phenol, Ether	July
12	Aldehydes, Ketones, Acids	August
13	Amines	August
14	Biomolecules	October
7	P Block	October

8	D & F Block	October
9	Coordination Compounds	Nov
15	Polymers	Nov
16	Chemistry in Everyday Life	Nov

4.Number of Worksheets planned per chapter:One worksheet per chapter

5.Syllabus for periodic tests

- Periodic -I (May) 1,2,3
- Periodic -II (September first week) 1,2,3,4,5, 6,10,11,12,13,14
- Periodic -III (November),7, 8,9,15,16

There'll be 2 preboards in the month of December and January resp.

8.Chapter/ unit wise allocation of marks

Unit No.	Title	No. of	Marks
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Periods

Unit I	Solid State		23
		10	
Unit II	Solutions	10	
Unit III	Electrochemistry	12	
Unit IV	Chemical Kinetics	10	
Unit V	Surface Chemistry	08	
Unit VI	General Principles and processes of isolation of elem	08	
Unit VII	p -Block Elements	12	
Unit VIII	d -and f -Block Elements	12	
Unit IX	Coordination Compounds	12	
Unit X	Haloalkanes and Haloarenes		19
		10	
Unit XI	Alcohols, Phenols and Ethers	10	
Unit XII	Aldehydes, Ketones and Carboxylic Acids	10	
Unit XIII	Amines	10	
Unit XIV	Biomolecules	12	28

Unit XV	Polymers	8
Unit XVI	Chemistry in Everyday Life	6
Total	160	70

Syllabus

Unit I: Solid State

10 Periods

Classification of solids based on different binding 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, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties.

Band theory of metals, conductors, semiconductors and insulators and n and p type semiconductors.

Unit II: Solutions

10 Periods

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law, colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.

Unit III: Electrochemistry

12 Periods

Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, fuel cells, corrosion.

Unit IV: Chemical Kinetics

10 Periods

Rate of a 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 V: Surface Chemistry

08 Periods

Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis: homogenous and heterogenous, activity and selectivity of solid catalysts; enzyme catalysis, colloidal state: distinction between true solutions, colloids and suspension; lyophilic, lyophobic, multi-molecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.

Unit VI: General Principles and Processes of Isolation of Elements 08 Periods

Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

Unit VII:p-Block Elements

12 Periods

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); Phosphorus - allotropic forms, compounds of Phosphorus: Preparation and properties of Phosphine, Halides 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, 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 (structures only).

Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

Unit VIII: d and f Block Elements

12 Periods

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 $KMnO_4$.

Lanthanoids - Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.

Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.

Unit IX: Coordination Compounds

12 Periods

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological system).

Unit X: Haloalkanes and Haloarenes.

10 Periods

Haloalkanes: Nomenclature, nature of C–X bond, physical and chemical properties, optical rotation mechanism of substitution reactions.

Haloarenes: Nature of C–X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only).

Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

Unit XI: Alcohols, Phenols and Ethers

10 Periods

Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to 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 XII: Aldehydes, Ketones and Carboxylic Acids

10 Periods

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 XIII: Amines

10 Periods

Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Unit XIV: Biomolecules

12 Periods

Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates.

Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure.

Vitamins - Classification and functions.

Nucleic Acids: DNA and RNA.

Unit XV: Polymers 08

Period Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.

Unit XVI: Chemistry in Everyday life 06

Periods Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines. Chemicals in food - preservatives, artificial sweetening agents, elementary idea of antioxidants. Cleansing agents- soaps and detergents, cleansing action.

PRACTICALS

Evaluation Scheme for Examination Marks

Volumetric Analysis 08

Salt Analysis 08

Content Based Experiment 06

Project Work 04

Class record and viva 04

Total 30

Micro-chemical methods are available for several of the practical experiments.

Wherever possible, such techniques should be used.

A. Surface Chemistry

- (a) Preparation of one lyophilic and one lyophobic sol
Lyophilic sol - starch, egg albumin and gum
Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.
- (b) Dialysis of sol-prepared in (a) above.
- (c) Study of the role of emulsifying agents in stabilizing the emulsion of different oils.

B. Chemical Kinetics

- (a) Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.
- (b) Study of reaction rates of any one of the following:
- (i) Reaction of Iodide ion with Hydrogen Peroxide at room temperature using different concentration of Iodide ions.
- (ii) Reaction between Potassium Iodate, (KIO_3) and Sodium Sulphite: (Na_2SO_3) using starch solution as indicator (clock reaction).

Evaluation Scheme for Examination Marks Volumetric Analysis 08

Salt Analysis 08

Content Based Experiment 06 Project Work 04

Class record and viva 04 Total 30

C. 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.

D. Electrochemistry

Variation of cell potential in $\text{Zn}/\text{Zn}^{2+} || \text{Cu}^{2+}/\text{Cu}$ with change in concentration of electrolytes (CuSO_4 or ZnSO_4) at room temperature.

E. Chromatography

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).

F. Preparation of Inorganic Compounds

i) Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum.

ii) Preparation of Potassium Ferric Oxalate.

G. Preparation of Organic Compounds

Preparation of any one of the following compounds

i) Acetanilide

ii) Di-benzal Acetone

iii) p-Nitroacetanilide

iv) Aniline yellow or 2 - Naphthol Aniline dye.

H. Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

I. Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given food stuffs.

J. Determination of concentration/ molarity of 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).

K. Qualitative analysis

Determination of one cation and one anion in a given salt.

Cation - Pb^{2+} , Cu^{2+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Cu^{2+} , Co^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , $[\text{NH}_4]^+$

Anions - $[\text{CO}_3]^{2-}$, S^{2-} , $[\text{SO}_3]^{2-}$, $[\text{SO}_4]^{2-}$, $[\text{NO}_2]^-$, Cl^- , Br^- , I^- , $[\text{PO}_4]^{3-}$, $[\text{C}_2\text{O}_4]^{2-}$, CH_3COO^-

(Note: Insoluble salts excluded)

9. Question paper design: (Typology of questions with respective weightage)

Sample question paper

http://cbseacademic.nic.in/web_material/SQP/ClassXII_2020_21/Chemistry-SQP.pdf

10. Prescribed Books : N.C.E.R.T Part I and Part II

H.P.S.