

Dear Parents,

Greetings to you for the new academic session and congratulations for successfully elevating yourself to the next higher class! I am very optimistic that you will continue your good work with same enthusiasm and strive hard to achieve better on the dint of your hard work.

This syllabus is a comprehensive guideline comprising of scholastic and co-scholastic goals set by the school to be accomplished in the session 2026-27. This has been designed with an objective to assist you in getting an overall idea about the series of activities, observations, celebrations and assessments going to take place in the academic year.

So, prepare yourself taking guidance from the syllabus and your teachers for your holistic development. Perfecting yourself with proper planning to achieve short-term goals will surely help you in attaining your ultimate milestone.

Best Wishes



Sambit Sukumar Chinara

Principal

SYLLABUS 2026-27: A LEAD-IN

"The syllabus is a small place that brings students and teachers together."

Sharon Rubin

A syllabus is a formal statement of what the course is about, where it is going, what students are being asked to do, how their performance is evaluated and what is required for them to be successful in the academic year. So a great way to start the academic year is to begin by properly going through the syllabus in detail.

This syllabus sets forth what is expected to happen during the academic year 2026-27 in both scholastic and co-scholastic domains for the class and delineates the responsibilities of students and those of the teachers. It gives a clear and accurate course structure, course calendar, attendance and grading policies etc. It is a permanent record that serves accountability and documentation functions. It contains information useful for evaluation of teachers for academic session as it mentions required textbooks and other materials, the subjects and topics to be covered at the level for various examination schedules (Periodic Tests, Pre-Board) and the rubrics for evaluation. This is a learning tool that helps students become more effective learners in the class. It places the course in context and informs students of the teachers' procedures to evaluate their learning, the coverage of the content area and what they need to be effective learners.

The syllabus also presents the co-curricular planner that guides the students through various seminars, activities to be held in the academic session.

The syllabus in your hands is prepared strictly under the guidelines of CBSE. It is necessary for all the stakeholders to go through the pages in detail as the institution expects the teachers and the students to abide by it throughout the session. It is needless to say by this time that this Syllabus is going to provide you a solid beginning to the session 2026-27 as a resource to be referred over the academic year setting the tone and providing a conceptual framework to be successful in the ensuing academic session.

GUIDELINES FOR PARENTS

1. Please take out time to read school circulars, notes and remarks sent by teachers carefully.
2. Encourage your ward to participate in curricular and co-curricular activities with enthusiasm.
3. Do intimate any change in residential address or telephone number to your ward's class teacher at the earliest.
4. Taking leave during working days is strongly discouraged. Parents are responsible to make up for the loss in studies in case of leaves taken. The school will expect these students to be at par with his/her classmates in every way & that has to be ensured by the parents.
5. Students returning to school after recovery from a disease should procure a doctor's certificate permitting the ward to do so.
Kindly adhere to the prescribed quarantine period to return to class
CHICKEN POX – Till complete falling of scabs
MEASLES – 2 weeks after the rashes disappear
MUMPS – Until the swelling has gone
JAUNDICE – Six weeks after the recovery
COVID-19- After Quarantine period of 7 days.
6. Missing out any written tests or activity based evaluation directly affects the promotion of the students to the next class. A ward has to take all the periodic tests; failing which, we are constrained to repeat or reschedule the test.
7. Encourage your ward to speak in English only.
8. Motivate your ward to maintain a proper code of conduct. Damaging school property, using unparliamentarily / foul language in the school premises, any act of violence, rude behavior towards teachers, non-teaching staff and friends will be viewed seriously.
9. Please ensure that your ward does not wear gold jewellery to school. Wearing any kind of make-up, henna decoration is prohibited.
10. Bringing electronic gadgets like mobile; camera etc. is not permitted inside the school premises as per the CBSE rules. If found, the gadgets will be confiscated by the authority.

PARENTS-TEACHER MEETING

In the aim of reinforcing students' learning, progress and further development, the school organizes Parent-Teacher Interaction Meetings in regular intervals. The school acquaints the parents regarding the latest CBSE directives, changes in school rules and activities and offers individual feedback on students through class teachers. The class teachers also note constructive suggestions from the parents to improve the performance of the students.

Parents are requested to attend the meetings as the information is sent to them through notices from time to time.

EXAMINATION TIMELINE

EXAM	WINDOW TIME	SYLLABUS (DURATION) FOR THE TEST	MARKS	TIME ALLOWED
Periodic Test - I	27. 07.26 to 01.08.26	Syllabus covered from 1st week of April to 3rd week of July	40/35/30	1 ½ Hours
Half Yearly Examination	06.10.26 to 16.10.26	Syllabus covered till last week of September 2026	80/70	3 Hours
Sahodaya Pre Board	14.12.2026 to 24.12.2026	Full Course	80/70	3 Hours
PA – III / Pre Board	13.01.2027 to 21.01.2027	Full Course	80/70	3 Hours
Annual Examination	2 nd week of February 2027	Syllabus for Annual Examination	80/70	3 Hours

The Sustainable Development Goals (SDGs),

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. These SDGs have been specifically created to draw attention to some of the biggest environmental challenges in the world today.

- Educators can use these sub-targets to show their students the ways in which they can make an impact on improving the world that they live in.
- Students will get a greater knowledge of challenges faced not only in their own lives but also in the lives of others all around the world.
- They teach empathy to students—They give students an awareness of the wider world, and its values and identities.
- Empowers children to construct knowledge, explore values and develop respect towards Nature, which lays the foundations for an environmentally responsible adulthood in the next future.
- It helps in ensuring a better life for present and future generations.



CONTENT

<u>SL NO.</u>	<u>SUBJECT</u>	<u>PAGE NO.</u>
01	English	06
02	Mathematics	12
03	Physics	15
04	Chemistry	20
05	Biology	24
06	Computer Science	28
07	Physical Education	32
08	Hindi	35
09	Inter House Sports Activity	37
10	CCA Schedule	40

ENGLISH (301)

TIME: 3 Hours

F M: 80+20=100

PRESCRIBED BOOKS:

1. FLAMINGO BY NCERT
2. VISTAS BY NCERT

Section	Areas of Learning	PT	H.Y/Pre-Annual & Annual	Total Marks
A	Reading : Unseen Passage (Two)	10	12+ 10	22
B	Advanced Writing Skills	4+5	4+4+5+5	18
C	Literature	5+4+2+5+5	6+4+6+ 10+4+5+5	40
	Assessment of Listening		5	
	Assessment of Speaking	-	5	20
	Project Work		10	
	TOTAL:	40	100	100

DIFFICULTY LEVEL

- | | | |
|------------------------|---|-----|
| 1. Difficult Questions | - | 15% |
| 2. Moderate Questions | - | 70% |
| 3. Easy Questions | - | 15% |

- Competency Based Questions in the form of MCQs/ Case Based Questions, Source-Based Integrated Questions or any other type = 60%
- Select response type questions (MCQ) = 20%
- Constructed response questions (Short Answer Questions/Long Answer type Questions, as per existing pattern) = 20%

QUESTION PAPER DESIGN		
Section	Competencies	Total Marks
Reading Skill	Conceptual understanding, decoding, Analyzing, inferring, interpreting, appreciating, literary, conventions and vocabulary, summarizing and using appropriate format/s.	22
Creative Writing Skills	Conceptual Understanding, application of rules, Analysis, Reasoning, appropriacy of style and tone, using appropriate format and fluency, inference, analysis, evaluation and creativity.	18
Literature Text Books & Supplementary Reading Texts	Recalling, reasoning, appreciating literary convention, inference, analysis, creativity with fluency, Critical Thinking.	40
	Total	80
	Internal Assessment	
	• Listening	5
	• Speaking	5
	• Project Work	10
	Grand Total	100

SECTION – A

Choice questions/objective type questions will be asked. Reading comprehension through unseen passage 22 marks.

UNSEEN PASSAGE	NO. OF WORDS	TEXTING AREAS	MARKS ALLOTTED
1	700-750 WORDS	One unseen passage to assess Comprehension, interpretation and inference. Vocabulary and inference of meaning will also be assessed. The	12

UNSEEN PASSAGE	NO. OF WORDS	TEXTING AREAS	MARKS ALLOTTED
		passage may be factual, descriptive or literary in description.	
2		One unseen case-based passage with verbal/visual inputs in the form of data analytics, statistical data, charts etc. to assess comprehension.	10

Note: The combined word limit for both the passages will be 700 750 words. Multiple Choice Questions / Objective Type Questions will be asked.

SECTION – B (CREATIVE WRITING SKILLS - 18 MARKS)

Creative Writing Skills:

18 Marks

The section has short and long writing tasks.

- Notice Writing up to 50 words. One out of the two given questions to be answered. (4 Marks: Format: 1/ Content: 2/ Accuracy of Spelling and Grammar: 1).
- Formal/Informal Invitation and Replies up to 50 words. One out of the two given questions to be answered. (4 Marks: Format: 1 /Content: 2/Accuracy of Spelling and Grammar: 1).
- Letters based on verbal/visual input, to be answered in approximately 120-150 words. Letter types include application for a job with bio data or resume. Letters to the Editor (giving suggestions or opinion on issues of public interest/relevance). One out of the two given questions to be answered. (5 Marks: Format: 1/ Organisation of Ideas: 1/Content: 2/ Accuracy of Spelling and Grammar: 1).
- 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. (5 Marks: Format: 1/ Organisation of Ideas: 1/Content: 2/ Accuracy of Spelling and Grammar: 1).

SECTION-C (LITERARY TEXT [FLAMINGO AND VISTAS] - 40 MARKS)

This section will have variety of assessment items including Multiple Choice Questions, Objective Type Questions, Short Answer Type Questions and Long Answer Type Questions to assess comprehension, analysis, interpretation and extrapolation beyond the text.

Reference to the Context

40 Marks

- One Poetry extract out of two from the book **Flamingo** to assess comprehension, interpretation, analysis and appreciation. **(6x1=6 Marks)**
- One Prose extract out of two from the book **Vistas** to assess comprehension, interpretation, analysis and appreciation. **(4x1=4 Marks)**
- One prose extract out of two from the book **Flamingo** to assess comprehension, interpretation and analysis. **(6x1=6 Marks)**
- Short answer type question (**from Prose and Poetry from the book Flamingo**), to be answered in 40-50 words. Questions should elicit inferential responses through critical thinking. Five questions out of the six given are to be answered. **(5x2=10 Marks)**
- Short answer type question, **from Prose (Vistas)**, to be answered in 40-50 words. Questions should elicit inferential responses through critical thinking. Any 2 out of 3 questions are to be answered. **(2x2=4 Marks)**
- One Long answer type question, **from Prose/Poetry (Flamingo)**, to be answered in 120-150 words. Questions can be based on incident/theme/passage/extract / event as reference points to assess extrapolation beyond and across the text. The question will elicit analytical and evaluative response from students. Any 1 out of 2 questions to be done. **(1x5=5 Marks)**
- 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 Marks)**

Fluency & Coherence	• Noticeably/long pauses; rate of Speech is slow • Frequent repetition and/yourself-correction • Links only basic sentences; breakdown of coherence evident	• Usually fluent; produces simple speech fluently, but loses coherence in complex communication • Often hesitates and/or resorts to slow speech • Topics partly developed; not always concluded logically	• Is willing to speak at length, however repetition is noticeable • Hesitates and/or self corrects; occasionally loses coherence • Topics mainly developed, but usually not logically concluded	• Speaks without noticeable effort, with a little repetition • Demonstrates hesitation to find words or use correct grammatical structures and/or self-correction • Topics not fully developed to merit	• Speaks fluently almost with no repetition & minimal hesitation • Develops topic fully & coherently
Vocabulary & Grammar	• Demonstrates almost no flexibility, and mostly struggles for appropriate words • Uses very basic vocabulary to express view-points	• Communicates with limited flexibility and appropriacy on some of the topics • Complex forms and sentence structures are rare, exhibits limited vocabulary to express new ideas	• Communicates with limited flexibility and appropriacy on most of the topics • Sometimes uses complex forms and sentence structures, has limited vocabulary to describe express new points.	• Can express with some flexibility and appropriacy on most of the topics • Demonstrates ability to use complex forms and sentence structures most of the time; expresses with adequate vocabulary	• Can express with some flexibility and appropriacy on a variety of topics such as family, hobbies, work, travel and current events • Frequently uses complex forms and sentence structures, has enough vocabulary to express himself/herself

INTERNAL ASSESMENT

Assessment of Progressive Listening Skills – 05 marks

Assessment of Progressive Speaking Skills – 05 marks

Project Work – 10 marks

- Half-yearly - Project topic assignment, planning and presentation of project abstract. (September-October, 2026)
- SSCE-Project Report Submission and Viva-voce (January-February 2027)

ANNEXURE - I

ALS must be seen as an integrated component of all four language skills rather than a compartment of two. Suggested activities, therefore, take into consideration an integration of the four language skills but during assessment. Emphasis will be given to speaking and listening, since reading and writing are already being assessed in the written exam.

Class-XII (Total Marks: 20)

Assessment of Listening and Speaking Skills: (5+5=10 Marks)

i. Activities:

- Subject teachers must refer to books and concepts prescribed in the syllabus.
- In addition to the above, teachers may plan their own activities and create their own materials for assessing the listening and speaking skills.

ii. Parameters of Assessment: The listening and speaking skills are to be assessed on the following parameters:

- a. Interactive Competence (initiation and turn taking, relevance to the topic)
- b. Fluency (cohesion, coherence and speed of delivery)
- c. Pronunciation
- d. Language (Grammar and Vocabulary)

iii. Schedule:

- The practice of listening and speaking skills should be done throughout the academic year.
- The final assessment of the skills is to be done as per the convenience and schedule of the school.

Project Work + Viva: 10 Marks

Out of ten marks, 5 marks will be allotted for the project report/script/essay/experiential writing and 5 marks for the viva.

Schedule:

- Schools may refer to the suggestive timeline given in these guidelines for the planning, preparation and viva-voce of ALS based projects.

The final assessment of the skill may be done on the basis of parameters suggested by the Board. Language teachers, however, have the option to adopt/ modify these parameters according to their school specific requirements.

COURSE STRUCTURE

Section	PT	HALF YEARLY	PRE BOARD / BOARD EXAM
A	Q.1 Reading Comprehension Case based Comprehension Passage 10 MARKS	Reading Section Comprehension & Vocabulary Case based Comprehension Passage	Reading Section Comprehension & Vocabulary Case based Comprehension Passage
B	Writing Skills - Q.2 Notice (4 MARKS) - Q.3 Letter to the Editor / Job Application (5 MARKS)	Writing Skills - Notice - Invitation & Replies (Formal & Informal) - Letters to the Editor - Job Application - Article Writing - Report Writing	Writing Skills - Notice - Invitation & Reply (Formal & Informal) - Letters to the Editor - Job Application - Article Writing - Report Writing
C	LITERATURE TEXT BOOKS FLAMINGO PROSE - The Last Lesson - Lost Spring POETRY - My Mother at Sixty-six - Keeping Quiet VISTAS - The Third Level - The Tiger King DIVISION OF MARKS Q.4 - 1 EXTRACT (PROSE/POETRY)- 5X1 Q.5 - 2 SAQs (2x2) from Flamingo Q.6 - 1 SAQ (2X1) from Vistas Q.7 - 1 LAQ (5 marks) from Flamingo Q.8 - 1 LAQ (5 marks) from Vistas	LITERATURE TEXT BOOKS FLAMINGO PROSE - The Last Lesson - Lost Spring - Deep Water - The Rattrap - Indigo - Poets and Pancakes POETRY - My Mother at Sixty-six - Keeping Quiet - A Thing of Beauty - Aunt Jennifer's Tigers VISTAS - The Third Level - The Tiger King - Journey to the End of the Earth. - The Enemy - On The Face of It	LITERATURE TEXT BOOKS FLAMINGO PROSE - The Last Lesson - Lost Spring - Deep Water - The Rattrap - Indigo - Poets and Pancakes - The Interview Part-1 and Part 2 - Going Places POETRY - My Mother at Sixty-six - Keeping Quiet - A Thing of Beauty - Aunt Jennifer's Tigers - A Roadside Stand VISTAS - The Third Level - The Tiger King - Journey to the End of the Earth. - The Enemy - On the Face of It - Memories of Childhood (The Cutting of My Long Hair, We Too are Human Beings)

N.B:

1. PRE-BOARD also includes the syllabus of Half-Yearly.
2. The BOARD EXAMINATION includes the whole syllabus.

MATHEMATICS (041)**Time: 3 hours****F.M.: 80****PRESCRIBED BOOKS:**

1. Mathematics Text book for Class XII (NCERT Publication, Part - I & II)
2. Mathematics Exemplar Problems for class XII (NCERT Publication)
3. Mathematics Lab Manual for Class XII, Published by NCERT

QUESTION PAPER DESIGN

SL.	Typology of Questions	Total Marks	Approximate Percentage
1	Remembering, Understanding	44	55 %
2	Applying	20	25 %
3	Analyzing, Evaluating, Creating	16	20 %
	Total Marks	80	100%
	Practical	20	
	Gross Total	100	

NB: Competency Focused Questions in the form of MCQs/ Case Based Questions, Source-based Integrated Questions or any other type = 50%

COURSE STRUCTURE

Sl. No.	Units	Type of Test / Name of The Topics	PT-I (40 marks)	Half Yearly (80 marks)	Sahodaya Pre-Board	Board Examination (80 Marks)
1	I	Relations & Functions	09	09	08	08
2		Inverse Trigonometric functions	07	07		
3	II Algebra	Matrices & Determinants	14	14	10	10
4	III Calculus	Continuity & Differentiability	10	10	35	35
5		Application of Derivatives		12		
6		Indefinite Integrals		08		
7		Definite Integrals		08		
8		Application of Integrals		06		
9		Differential equation		06		
10	IV	Vectors			14	14
11		Three dimensional geometry				
12	V	Linear programming problem			05	05
13	VI	Probability			08	08
		TOTAL	40	80	80	80

SYLLABUS DETAILS**UNIT - I : RELATIONS AND FUNCTIONS****1. Relations and Functions:**

Types of relations, reflexive, symmetric, transitive and equivalence relations. One to one and onto functions.

2. Inverse Trigonometric Functions:

Definition, range, domain, principal value branch, Graphs of inverse trigonometric functions.

UNIT - II: ALGEBRA

1. Matrices

Concept, notation, order, equality, types of matrices, zero & identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. Operation on matrices: Addition and multiplication and multiplication with a scalar, simple properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Invertible matrices and proof of uniqueness of inverse, if it exists; (Here all matrices will have real entries)

2. Determinants

Determinant of a square matrix (up to 3 x 3 matrices), minors, cofactors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.

UNIT - III: CALCULUS

1. Continuity and Differentiability

Continuity and differentiability, chain rule, derivative of inverse trigonometric functions like $\sin^{-1}x$, $\cos^{-1}x$ and $\tan^{-1}x$, derivative of implicit functions. Concept of exponential and logarithmic functions.

Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives.

2. Applications of Derivatives

Applications of derivatives: Rate of change of quantities, increasing/decreasing functions, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).

3. Integrals

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts. Evaluation of simple integrals of the following types and problems based on them.

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{a^2 - x^2}, \int \frac{dx}{\sqrt{x^2 + a^2}}, \int \frac{dx}{\sqrt{x^2 - a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 \pm bx + c}, \int \frac{dx}{\sqrt{ax^2 + bx + c}}$$

$$\int \frac{px+q}{ax^2 \pm bx + c} dx, \int \frac{px+q}{\sqrt{ax^2 + bx + c}} dx, \int \sqrt{a^2 \pm x^2} dx, \int \sqrt{x^2 - a^2} dx, \int \sqrt{ax^2 + bx + c} dx.$$

Fundamental Theorem of Calculus (without proof), basic properties of definite integrals and evaluation of definite integrals.

4. Applications of the Integrals

Applications in finding the area under simple curves, especially lines, circles/parabolas/ellipses (in standard form only).

5. Differential Equations

Definition, order and degree, general and particular solutions of a differential equation. Solution of differential equations by method of separation of variables, Solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type:

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ or constants.}$$

$$\frac{dx}{dy} + px = q, \text{ where } p \text{ and } q \text{ are functions of } y \text{ or constants.}$$

UNIT - IV: VECTORS AND THREE-DIMENSIONAL GEOMETRY

- Vectors:** Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Definition, Geometrical interpretation, properties and application of Scalar (dot) product of vectors. Vector (cross) product of vectors.

2. **Three - Dimensional Geometry:** Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, skew lines, shortest distance between two lines. Angle between two lines.

UNIT - V: LINEAR PROGRAMMING

1. **Linear Programming:** Introduction, related terminology such as constraints, objective functions, optimization, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

UNIT - VI: PROBABILITY

1. **Probability:** Conditional probability, multiplication theorem on probability, independent events, total probability, Baye's theorem.

INTERNAL ASSESSEMENT	20 MARKS
Periodic Tests (Best 2 out of 3 tests conducted)	10 Marks
Mathematical Activities	10 Marks

- 20 % weightage questions will be asked from the exemplar text book in all the examinations.
- No chapter wise weightage
- There will be no overall choice in the question paper, however, 33% internal choices will be given in each section.

NB: Question wise break up and typology of questions shall be done at par with the sample paper to be released by CBSE.

ACTIVITY (10 MARKS)		
Sl No	LIST OF ACTIVITIES	
1	ACTIVITY 1 (Parallel of lines is an equivalence relation)	Half yearly
2	ACTIVITY 2 (To demonstrate a function which is not one-one but onto)	
3	ACTIVITY 3(To draw the graph of $\sin^{-1}x$, using the graph of $\sin x$ and demonstrate the concept of mirror reflection about the line $y = x$.	
4	ACTIVITY 4(Checking of Continuity of $f(x)$ at $x=c$)	
5	ACTIVITY 5 (To understand the concept of decreasing and increasing functions)	
6	ACTIVITY 6 (concept of absolute maximum and minimum)	Annual (Including Half yearly)
7	ACTIVITY 7 (construct of an open box of maximum volume from a given rectangular sheet)	
8	ACTIVITY 8 (Angle in a semi circle is right angle)	
9	ACTIVITY 9 (To find the distance between two skew lines)	
10	ACTIVITY 10(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)	

NB: (i)(a) One activity (3 marks) out of first 5 will be asked in the half yearly exam and one activity (3 marks) will be asked out of 10 activities for annual activity test.

(b) Maintenance of record carries 5 marks and viva voce 2 marks which is in total 10 marks.

Assessment of Activities

Half Yearly	Annual
Record – 5 Marks	Record – 5 Marks
Viva voce - 2 Marks	Viva voce - 2 Marks
Activity – 3 Marks (Out of first 5 activities)	Activity – 3 Marks (Out of 10 activities)

ii) Periodic test (PT, HY, Pre Board / Pre Annual) out of these 3 two best marks to be taken for calculating for another 10 weightage.

iii) Total Internal Assessment will be done for 20 marks (10 from activity and 10 from periodic test)

PHYSICS (042)**PRESCRIBED BOOKS:**

1. Physics Part-I, Published by NCERT
2. Physics Part-II, Published by NCERT
3. Exemplar Physics, Published by NCERT
4. Laboratory Manual of Physics, Class XII Published by NCERT
5. Any related books and manuals brought out by NCERT (Also consider multimedia)

QUESTION PAPER DESIGN**Maximum Marks: 70****Duration: 3Hrs**

SL.	Typology of Questions	Total Marks	Approximate Percentage
1.	Remembering, Understanding	27	38 %
2.	Applying	22	32 %
3.	Analysing / Evaluating / Creating	21	30 %
Total Marks		70	100
Practical		30	
Gross Total		100	

NOTE:

- The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and typology of questions same.
- Competency Focused Questions in the form of MCQs/ Case Based Questions, Source-based Integrated Questions or any other type = 50%
- Select response type questions (MCQ) = 20%
- Constructed response questions (Short Answer Questions/Long Answer type Questions, as per existing pattern) = 30%

COURSE STRUCTURE (THEORY)

UNITS	TYPE OF TEST	PT (35 Marks)	Half Yearly (70 Marks)	PRE BOARD / BOARD EXAM (70 Marks)
Unit I	Electrostatics	22	28	16
	Chapter 1 : Electric Charges and Fields			
	Chapter 2: Electrostatic Potential and Capacitance			
Unit II	Current Electricity	13		
	Chapter 3: Current Electricity			
Unit III	Magnetic effect of Current and Magnetism		30	17
	Chapter 4: Moving charges and magnetism			
	Chapter 5: Magnetism and Matter			
Unit IV	Electromagnetic Induction and Alternating Current			
	Chapter 6: Electromagnetic Induction			
	Chapter 7: Alternating Current		12	18
Unit V	Electromagnetic Waves			
	Chapter 8: Electromagnetic Waves			
Unit VI	Optics			
	Chapter 9: Ray Optics and Optical Instruments			
	Chapter 10 : Wave Optics			12
Unit VII	Dual Nature of Radiation and Matter			
	Chapter 11: Dual Nature of Radiation and Matter			

Unit – VIII	Atoms and Nuclei			
	Chapter 12: Atoms			
	Chapter 13: Nuclei			
Unit–IX	Electronics Devices			
	Chapter 14: Semiconductor Electronics: Materials, Devices and Simple Circuits.			07
	TOTAL	35	70	70

Time : 3 hours**F.M. : 70**

N.B. : 20% weightage questions may be asked from Exemplar Text book in all the examination.

SYLLABUS DETAILS**UNIT-I : ELECTROSTATICS****Chapter -1 :Electric Charges and Field**

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 field 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 polarization, 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 (no derivation, formulae only).

UNIT-II : CURRENT ELECTRICITY**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, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, 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 rules, Wheatstone bridge.

UNIT-III : MAGNETIC EFFECTS OF CURRENT AND MAGNETISM**Chapter -4: Moving charges and Magnetism**

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 solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields.

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; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer its current sensitivity and conversion to ammeter and voltmeter.

Chapter -5 : Magnetism and Matter

Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines.

Magnetic properties of materials- Para-, dia- and ferro – magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.

UNIT-IV : ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS

Chapter -6 :Electromagnetic Induction

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

Chapter -7 :Alternating Current

Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, watt less current. AC generator, Transformer.

UNIT-V : ELECTROMAGNETIC WAVES

Chapter -8 :Electromagnetic waves

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

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

UNIT-VI : OPTICS

Chapter -9 : Ray Optics and Optical instruments

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

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

Chapter -10 :Wave optics

Wave optics: Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only).

UNIT VII : DUAL NATURE OF MATTER AND RADIATION

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.

Experimental study of photoelectric effect .

Matter waves-wave nature of particles, de-Broglie relation.

UNIT VIII: ATOMS AND NUCLEI

Chapter -12: Atoms

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in its orbit, hydrogen line spectra (qualitative treatment only).

Chapter -13 :Nuclei

Composition and size of nucleus, nuclear force.

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

UNIT IX :ELECTRONIC DEVICES

Chapter -14 :Semiconductor electronics, Materials, Devices and Simple Circuits

Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction.

Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode - diode as a rectifier.

PRACTICALS

The record, to be submitted by the students, at the time of their examination, has to include:

❖ **HALF YEARLY:**

➤ Record of at least 04 Experiments [from sections A & B], to be performed by the students.

➤ Record of at least 03 activities [from sections A & B], to be performed by the students.

❖ **ANNUAL:**

➤ Record of at least 08 Experiments [with a minimum of 4 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.

➤ Report of the project to be carried out by the students.

EVALUATION SCHEME

Time Allowed: 3hrs

Max Marks: 30

	Half- Yearly	Annual
Topic	Marks	Marks
Two experiments one from each section	7+7	7+7
Practical record (experiment and activities)	5	5
One activity from any section	3	3
Investigatory Project	3	3
Viva on experiments, activities and projects	5	5
Total	30	30

SECTION-A

Experiments

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 resistors using a metre bridge.

OR

4. To verify the laws of combination (parallel) of resistances using a metre bridge.
5. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
6. To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same.

OR

7. 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 of 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 find the refractive index of a liquid using a concave mirror and a plane mirror.
9. To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias.

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, 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 diffraction of light due to a thin slit.
6. To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
7. To obtain a lens combinations 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) in the power of the incandescent lamp, used to 'illuminate' the LDR. (keeping all the lamps at a fixed distance).
 - (b) the distance of a incandescent lamp (of fixed power) use to 'illuminate' the LDR.
3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equiconvex lens (made from a glass of known refractive index) and an adjustable object needle.
4. 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.
5. 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.
6. 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.
7. 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.
8. To study the earth's magnetic field using a compass needle-bar magnet by plotting magnetic field lines and tangent galvanometer.

CHEMISTRY (043)**PRESCRIBED BOOKS:**

1. Chemistry Part-I, Published by NCERT
2. Chemistry Part-II, Published by NCERT
3. Exemplar Chemistry, Published by NCERT
4. Laboratory Manual of Chemistry, Class XII Published by NCERT
5. Any related books and manuals brought out by NCERT (Also consider multimedia)

QUESTION PAPER DESIGN

SL.	Typology of Questions	Total Marks	Approximate Percentage
1.	Remembering and Understanding: Exhibit memory of previously learned material by recalling facts, terms, basic concepts and answers. Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas.	28	40 %
2.	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	21	30 %
3.	Analysing, Evaluating and Creating: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria. Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	21	30 %
Total Marks		70	100
Practical		30	
Gross Total		100	

N.B. : 20% weightage questions may be asked from Exemplar Text book in all the examination.

- Competency Focused Questions in the form of MCQs/ Case Based Questions, Source-based Integrated Questions or any other type = 50%
- Suitable internal variations may be made for generating various templates.
- There will be no overall choice in the question paper.
- However, 33% internal choices will be given in all the sections.

COURSE STRUCTURE (THEORY)

Sl. NO.	UNITS	TYPE OF TEST / NAME OF THE CHAPTER	PT	HALF YEARLY	PRE BOARD / BOARD EXAM
					SAHODAYA PRE BOARD / DAV PRE BOARD: BOARD EXAM: As per CBSE Guidelines
1	Unit – I	Solution	10	8	7
2	Unit –II	Electrochemistry	15	10	9
3	Unit –III	Chemical Kinetics	10	8	7
4	Unit –IV	d & f-Block Elements		9	7
5	Unit –V	Coordination Compounds		9	7
6		Surface Chemistry General principles & Process of Isolation elements			
7	Unit –VI	Haloalkanes and Haloarenes		9	6

Sl. No.	Units	Type of Test / Name of the Chapter	PT	Half Yearly	Pre Board / Board Exam
					SAHODAYA PRE BOARD / DAV PRE BOARD: BOARD EXAM: As per CBSE Guidelines
8	Unit –VII	Alcohols, Phenols and Ethers		10	6
9	Unit -VIII	Aldehydes, Ketones and Carboxylic Acids			8
10	Unit -IX	Organic Compounds Containing Nitrogen			6
11		Polymers Chemistry in everyday life			
12	Unit -X	Bio molecules		7	7
		TOTAL MARKS	35	70	70

SYLLABUS DETAILS**UNIT I: SOLUTIONS**

Types of Solutions, Expression of Concentration of Solutions, Solubility, Vapour Pressure of Liquid Solutions, Ideal and Non –Ideal Solutions, Colligative Properties and Determination of Molar Mass, Abnormal Molecular Masses.

UNIT II: ELECTROCHEMISTRY

Electrochemical Cells, Galvanic Cells, Nernst Equation, Conductance of Electrolytic solutions, Electrolytic Cells and Electrolysis, Batteries, Fuel Cells, Corrosion.

UNIT III: CHEMICAL KINETICS

Rate of a Chemical reaction, factors influencing rate of reaction, integrated rate equations, Temperature Dependence of the rate of a reaction, Collision theory of Chemical Reactions

UNIT IV: "d" AND "f" BLOCK ELEMENTS

Position in the Periodic Table, Electronic configuration of the d-Block Elements, General properties of the Transition Elements (d-Block), Some Important Compounds of Transition Elements, The Lanthanoids, The Actinoids, Some Applications of d- and f- Block Elements.

UNIT V: COORDINATION COMPOUNDS

Werner's Theory of Coordination Compound, Definition of Some important terms pertaining to Coordination Compounds, Nomenclature of Coordination Compounds. Isomerism in Coordination Compounds, Bonding in coordination compounds, Bonding in Metal Carbonyls, Importance and Applications of Coordination Compounds.

UNIT VI : HALOALKANES AND HALOARENES

Classification, Nomenclature, Nature of C–X bond, Methods of Preparation of Haloalkanes, Preparation of Haloarenes, Physical Properties, Chemical Reactions, Polyhalogen Compounds.

UNIT VII : ALCOHOLS, PHENOLS AND ETHERS

Classification, Nomenclature, Structures of Functional Groups, Alcohols and Phenols, Some commercially Important Alcohols, Ethers.

UNIT VIII: ALDEHYDES, KETONES AND CARBOXYLIC ACIDS

Nomenclature and Structure of Carbonyl Group, Preparation of Aldehydes and Ketones, Physical Properties and Chemical Reactions, Uses of Aldehydes and Ketones

Nomenclature Structure of Carboxyl Group, Methods of Preparation of Carboxylic Acids, Physical Properties and Chemical Reactions, Uses of Carboxylic Acids.

UNIT IX : AMINES

Structure of Amines, Classification, Nomenclature, Preparation of Amines, Physical Properties, Chemical Reactions, Methods of Preparation of Diazonium Salts, Physical Properties, Chemical Reactions, Chemical Reactions Importance of Diazonium Salts in Synthesis of Aromatic Compounds.

UNIT X: BIOMOLECULES

Carbohydrates, Proteins, Enzymes, Vitamins Nucleic Acids, Hormone

Note: The following topics are included in the syllabus but will be assessed only formatively to reinforce understanding without adding to summative assessments. This reduces academic stress while ensuring meaningful learning. Schools can integrate these with existing chapters as they align well. Relevant NCERT textual material is enclosed for reference.

1. **Surface Chemistry** - Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic properties of colloids; coagulation, emulsion - types of emulsions.
2. **General Principles and Processes of Isolation of Elements** - Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining
3. **Polymers** – Polymerization, Homopolymers and copolymer with few examples
4. **Chemistry in Everyday life** - Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines. Chemicals in food - preservatives, artificial sweetening agents, antioxidants.

PRACTICALS

EVALUATION SCHEME FOR EXAMINATION	Half Yearly	ANNUAL
VOLUMETRIC ANALYSIS	10	8
SALT ANALYSIS	-	8
CONTENT BASED EXPERIMENT	6	6
PROJECT WORK	4	4
CLASS RECORD AND VIVA	10	4
Total	30	30

PRACTICAL SYLLABUS

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).

C. Thermo chemistry

Any one of the following experiments

- a) Enthalpy of dissolution of Copper Sulphate or Potassium Nitrate.
- b) Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH).
- c) Determination of enthalpy change during interaction (Hydrogen bond formation) between Acetone and Chloroform.

D. Electrochemistry

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

E. Chromatography

- Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values.
- 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

- Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum.
- Preparation of Potassium Ferric Oxalate.

G. Preparation of Organic Compounds

Preparation of any one of the following compounds

- Acetanilide
- Di-benzal Acetone
- p-Nitroacetanilide
- 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:**

- Oxalic acid
- 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+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{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^- , NO_3^-

PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects.

- Study of the presence of oxalate ions in guava fruit at different stages of ripening.
- Study of quantity of casein present in different samples of milk.
- Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
- Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)
- Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
- Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
- Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).
- Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

Note: Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.

Links for NCERT textbooks:

- <https://ncert.nic.in/textbook.php?lech1=0-5>
- <https://ncert.nic.in/textbook.php?lech2=0-5>
- https://ncert.nic.in/division/dek/pdf/Manual_01.pdf

BIOLOGY (044)**TIME: 3 Hours****F.M.: 70+30=100****PRESCRIBED BOOKS:**

1. Text book of Biology for class-XII (NCERT).
2. Exemplar Biology-class-XII (NCERT).
3. Biology supplementary material (revised), available on CBSE website.
4. Other related books and manuals brought out by NCERT (including multimedia).
5. Laboratory Manual in Biology - XII (Published by NCERT).

QUESTION PAPER DESIGN

TPOLOGY	MARKS(PERCENTAGE)
Demonstrate Knowledge and Understanding	35 (50%)
Application of Knowledge / Concepts	21 (30 %)
Formulate, Analyse, Evaluate and Create	14 (20 %)
Practical	30 (100%)
Total Marks	100

NOTE:

- Question wise break up shall be followed as per the sample paper to be released by CBSE.
- Competency Focused Questions in the form of MCQs/ Case Based Questions, Source-based Integrated Questions or any other type = 50%
- Select response type questions (MCQ) = 20%
- Constructed response questions (Short Answer Questions/Long Answer type Questions, as per existing pattern) = 30%

COURSE STRUCTURE (THEORY)

UNIT	Name of the Exam / Name of the Unit	PT	Half Yearly	Sahodaya Pre-Board	Pre Board/Board Exam DAV Pre Board: BOARD EXAM (As per Notification by CBSE)
VI	Reproduction	23	20		16
VII	Genetics and Evolution	12 (Chapter-4 only)	26		20
VIII	Biology and Human Welfare	-	14		12
IX	Biotechnology and its Applications	-	10 (Chapter-9 only)		12
X	Ecology and Environment	-	-		10
	Total Marks	35	70		70

SYLLABUS DETAILS**Unit – VI Reproduction****Chapter-1: Sexual Reproduction in Flowering Plants**

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; out-breeding 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-2: Human Reproduction

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

Chapter-3: Reproductive Health

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

Unit – VII (Genetics and Evolution)**Chapter-4: Principles of Inheritance and Variation (Heredity and variation):**

Mendelian inheritance; deviations from Mendelism–incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in humans, birds and honey bee; linkage and crossing over; sex linked inheritance-haemophilia, colour blindness; Mendelian disorders in humans-thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Chapter-5: Molecular Basis of Inheritance

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

Chapter-6: Evolution

Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic 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; adaptive radiation; brief account of evolution; human evolution.

Unit-VIII Biology and Human Welfare**Chapter-7: Human Health and Diseases**

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

Chapter-8: Microbes in Human Welfare

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

Unit-IX Biotechnology and its Applications**Chapter-9: Biotechnology-Principles and Processes**

Genetic Engineering (Recombinant DNA Technology).

Chapter-10: Biotechnology and its Applications

Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms-Bt-crops; transgenic animals; bio-safety issues, bio-piracy and patents.

Unit-X Ecology and Environment**Chapter-11: Organisms and Populations**

Population interactions - mutualism, competition, predation, parasitism; population attributes growth, birth rate and death rate, age distribution.

Chapter-12: Ecosystem

Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass,

energy.

Chapter-13: Biodiversity and its Conservation

Biodiversity Concept, 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

HALF YEARLY PRACTICAL SYLLABUS

The following topics are included in the syllabus but will be assessed only formatively to reinforce understanding without adding to summative assessments. The reduces academic stress while ensuring meaningful learning. Schools can integrate these with existing chapters as they align well. Relevant NCERT textual material is enclosed for reference.

Environmental Issues (available as a part of CBSE Reading Material): Air pollution and its control, Water pollution and its control, Solid Wastes, Agro-chemicals and their effects, Radioactive wastes, Greenhouse effect and global warming, Ozone depletion in the stratosphere, Degradation by improper resource utilization and maintenance, deforestation.

A. List of Experiments

1. Prepare a temporary mount to observe pollen germination.
2. Prepare a temporary mount of onion root tip to study mitosis.
3. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.

B. Study and observe 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 grass hopper 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-emasculatation, tagging and bagging.
9. Common disease causing organisms like *Ascaris*, *Entamoeba*, *Plasmodium*, any fungus causing ringworm through permanent slides, models or virtual images or specimens. Comment on symptoms of diseases that they cause.
10. Flash cards models showing examples of homologous and analogous organs.

ANNUAL PRACTICAL SYLLABUS (HALF YEARLY SYLLABUS INCLUDED)

Evaluation Scheme	Marks
One Major Experiment 5	5
One Minor Experiment 2 & 3	4
Slide Preparation 1 & 4	5
Spotting	7
Practical Record+ Viva Voce	4
Investigatory Project and its Project Record+ Viva Voce (Credit to the students' work over the academic session maybe given)	5
Total	30

A. List of Experiments

1. Prepare a temporary mount to observe pollen germination.
2. Study the plant population density by quadrat method.
3. Study the plant population frequency by quadrat method.
4. Prepare a temporary mount of onion root tip to study mitosis.
5. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, banana etc.

B. Study and observe 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 gel 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-emasculatation, tagging and bagging.
9. Common disease causing organisms like *Ascaris*, *Entamoeba*, *Plasmodium*, any fungus causing ringworm through permanent slides, models or virtual images or specimens. Comment on symptoms of diseases that they cause.
10. Models specimen showing symbiotic association in root modules of leguminous plants, *Cuscuta* on host, lichens.
11. Flash cards models showing examples of homologous and analogous organs.

COMPUTER SCIENCE (083)**REFERENCE BOOK :**

Computer Science with Python (Dhanpat Rai Publication by Sumita Arora)

QUESTION PAPER DESIGN

SL.	Typology of Questions	Total Marks	Approximate Percentage
1.	Remembering, Understanding	17	25 %
2.	Applying	23	33 %
3.	Analyzing, Evaluating, Creating	30	42 %
	Total Marks	70	100
	Practical	30	
	Gross Total	100	

NOTE:

- The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and typology of questions same.
- Question wise break up shall be followed as per the sample paper to be released by DAV CAE.
- Competency Focused Questions in the form of MCQs/ Case Based Questions, Source-based integrated Questions or any other type = 50%
- Select Response type questions(MCQ) & Objective type questions = 20%
- Constructed response questions (Short Answer Questions/Long Answer type Questions, as per existing pattern) = 30%

QUESTION WISE BREAK-UP

Periodic Test						
Forms of Questions	VSA	SA – I	SA-II	LA-I	LA-II	TOTAL
No. of Questions	12	04	02	01	01	20
Marks	01	02	03	04	05	
Total	12	08	06	04	05	35
Half Yearly / Pre Board						
Forms of Questions	VSA	SA – I	SA-II	LA-I	LA-II	TOTAL
No. of Questions	21	07	03	04	02	37
Marks	01	02	03	04	05	
Total	21	14	09	16	10	70

DIFFICULTY LEVEL :

- | | | |
|------------------------|---|------|
| 1. Difficult questions | - | 15 % |
| 2. Average questions | - | 70% |
| 3. Easy questions | - | 15% |

COURSE STRUCTURE (THEORY)

Unit	NAME OF THE TEST / NAME OF UNIT	PT	Half Yearly	Pre-Boards / Board Exam
1	Computational Thinking and Programming – 2			
	Revision of Python topics covered in class-XI	18	20	
	Functions & Exception Handling	17	15	40
	File Handling		25	
	Data Structure: Stack		10	
2	Computer Networks			
	Evolution of Networking & Data Communication terminologies			
	Transmission media & Network devices			10
	Network Topologies and types		--	
	Network Protocol			
	Introduction To Web services			
3	Database Management			
	Database Concepts & Relational data model			
	Structured Query Language, General Concepts			20
	Data Types and SQL commands:			
	SQL functions and Join		--	
	Interface of Python with an SQL database			
TOTAL		35	70	70

SYLLABUS DETAILS

UNIT 1 :Computational Thinking and Programming - 2 (70 Theory + 50 Practical)

Prerequisites Computer Science- Class XI

- Revision of Python topics covered in Class XI.
- **Functions:** types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope).
- Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths.
- **Exception Handling:** Introduction, handling exceptions using try-except-finally blocks
- **Text file:** opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines (), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file.
- **Binary file:** basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file.
- **CSV file:** import csv module, open / close csv file, write into a csv file using csv.writer() and read from a csv file using csv.reader().
- **Data Structure:** Stack, operations on stack (push & pop), implementation of stack using list.

UNIT 2 :Computer Networks

- Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET).

- Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching).
- Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves).
- Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card).
- Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree).
- Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP .
- Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting.

UNIT 3 : Database Management

- Database concepts: introduction to database concepts and its need .
- Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key) .
- Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count), group by, having clause, joins: cartesian product on two tables, equi-join and natural join .
- Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using connect (), cursor (), execute (), commit (), display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications, use of %s format specifier or format() to perform queries

PRACTICAL (HALF YEARLY)

Duration : 3 hours

Total Marks : 30

1. Programming in Python

12 marks

Two programming problems in python to be developed and tested in Computer during the examination. Marks are allotted on the basis of following:

Logic	: 4X2=8 Marks
Documentation / Indentation	: 1X2=2 Marks
Output presentation	: 1X2=2 Marks

2. Project Work

08 marks

(that uses the concepts that have been learnt in Class 11 and 12)

3. Practical Record (Minimum 15 Python programs)

07 marks

Suggested Practical List

Python Programming

- One programs from conditional statement
- One program each from string, list, tuple and dictionary.
- Read a text file line by line and display each word separated by a #.
- Read a text file and display the number of vowels/ consonants/ uppercase/ lowercase characters in the file.
- Remove all the lines that contain the character 'a' in a file and write it to another file.
- Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
- Create a binary file with roll number, name and marks. Input a roll number and update the marks.
- Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).

- Write a Python program to implement a stack using a list data-structure.
- Create a CSV file by entering user-id and password, read and search the password for given user-id.

4. Viva Voce**03 Marks****PRACTICAL (ANNUAL)****Duration : 3 hours****Total Marks : 30****Practical**

- **Programming in PYTHON** (8+4)
 1. Python program (60% logic + 20% documentation + 20% code quality)
 2. SQL Queries (4 queries based on one or two tables) to be filled by the student.
- **Report file**
 1. Minimum 15 Python programs.
 2. SQL Queries – Minimum 5 sets using one table / two tables.
- **Project** (7)
 3. Minimum 4 programs based on Python - SQL connectivity
- **Project** (8)

That uses the concepts that have been learnt in Class 11 and 12.
- **Viva voce** (3)

Suggested Practical List: Python Programming**Database Management**

- Create a student table and insert data. Implement the following SQL commands on the student table:
 - ALTER table to add new attributes / modify data type / drop attribute
 - UPDATE table to modify data
 - ORDER By to display data in ascending / descending order
 - DELETE to remove tuple(s)
 - GROUP BY and find the min, max, sum, count and average
- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing suitable module.

PROJECT GUIDELINES :

The aim of the class project is to create something that is tangible and useful using Python file handling/ Python-SQL connectivity. This should be done in groups of two to three students and should be started by students at least 6 months before the submission deadline. 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 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 disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required; this should be encouraged. Students should know how to teach themselves. The students should be sensitized to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.

PHYSICAL EDUCATION (048)

PRESCRIBED BOOK : Health & Physical Education by Dr. V.K. Sharma by Saraswati Publication

REFERENCE BOOK : Physical Education Hand Book. Central Board Of Secondary Education Publication.

COURSE STRUCTURE

Unit	TYPE OF TEST / NAME OF UNIT	PA-1 (35 Marks)	HALF-YEARLY (70 marks)	SAHODAYA PRE-BOARD / BOARD (70 marks)
1	Management of Sporting Events	10	12	09
2	Children and Women in Sports	09	12	12
3	Yoga as preventive measures for life style disease.	08	10	07
4	Physical Education & Sports for CWSN (Children with Special Needs-Divyang)		10	08
5	Sports and Nutrition	08	12	04
6	Test and Measurement in Sports		12	08
7	Physiology and Injuries in Sports		12	08
8	Biomechanics & Sports		-	08
9	Psychology and Sports		-	07
10	Training in Sports		-	09
	Total	35	70	70

- The question paper consists of 5 sections and there will be 37 questions including the internal choices out of which 34 questions to be attempted
- Scheme of Sections – A, B, C, D & E
Section-A – MCQ (1Mark), Section-B (2 Marks), Section-C (3Marks), Section-D-CBQ (4 Marks), Section-E (5 Marks)
- Competency Focused Questions in the form of MCQs/ Case Based Questions, Source-based Integrated Questions or any other type = 50%
- Select response type questions (MCQ) = 20%
- Constructed response questions (Short Answer Questions/Long Answer type Questions, as per existing pattern) = 30%

However, the unit wise mark distributions and scheme of sections for the Pre-Annual Examination & Annual Examination to be followed as per the CBSE Sample paper.

SYLLABUS DETAILS**Unit-I : Management of Sporting Events**

- Functions of Sports Events Management (Planning, Organizing, Staffing, Directing & Controlling)
- Various Committees & its Responsibilities (pre, during & post)
- Fixtures and their Procedures – Knock-Out (Bye & Seeding) & League (Staircase, Cyclic, Tabular method) and Combination tournaments
- Intramural & Extramural tournaments – Meaning, Objectives & Its Significance
- Community sports program (Sports Day, Health Run, Run for Fun, Run for Specific Cause & Run for Unity)

Unit-II : Children & Women in Sports

- Exercise guidelines of WHO for different age groups.

- Common Postural Deformities - Knock Knees, Flat Foot; Round Shoulders; Lordosis, Kyphosis and Scoliosis and Bow Legs and their respective Corrective Measures.
- Women's participation in Sports – Physical, Psychological, and social benefits.
- Special consideration (Menarche & Menstrual Dysfunction)
- Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders)

Unit-III : Yoga as Preventive measures for Lifestyle Disease

- Obesity: Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha – Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama.
- Diabetes: Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana, Bhujangasana, Shalabhasana, Dhanurasana, Suptavajarasana, Paschimottanasana, Ardha -Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.
- Asthma: Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, Uttan Mandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalabhati, Gomukhasana Matsyaasana, Anuloma - Viloma.
- Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, ArdhaHalasana, Sarala Matyasana, Gomukhasana, Uttan Mandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadishodhanapranayam, Sitlipranayam.
- Back Pain and Arthritis: Procedure, Benefits & Contraindications of Tadasana, Urdhawahastootansana, Ardha-Chakrasana, Ushtrasana, Vakrasana, Sarala Maysyendrsana, Bhujandgasana, Gomukhasana, Bhadrasana, Makarasana, NadiShodhana pranayama.

Unit-IV : PHYSICAL EDUCATION & SPORTS FOR CWSN (Children with Special Needs – Divyang)

- Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)
- Concept of Classification and Diversioning in Sports.
- Concept of Inclusion in sports, its need, and Implementation;
- Advantages of Physical Activities for children with special needs.
- Strategies to make Physical Activities assessable for children with special needs

Unit-V : Sports & Nutrition

- Concept of balanced diet and nutrition
- Macro and Micro Nutrients: Food sources & functions
- Nutritive & Non-Nutritive Components of Diet
- Eating for Weight control– A Healthy Weight, The Pitfalls of Dieting, Food Intolerance, and Food Myths
- Importance of Diet in Sports-Pre, During and Post competition Requirements

Unit-VI : Test & Measurement in Sports

- Fitness Test – SAI Khelo India Fitness Test in school:
Age group 5-8 years/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test
Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Partial Abdominal Curl Up, Push Ups for boys, Modified Push-Ups for girls).
- Measurement of Cardio Vascular Fitness – Harvard Step Test – Duration of the Exercise in Seconds $\times 100 / 5.5 \times$ Pulse count of 1-1.5 Min after Exercise.
- Computing Basal Metabolic Rate (BMR)
- Rikli & Jones - Senior Citizen Fitness Test
 - ✓ Chair Stand Test for lower body strength
 - ✓ Arm Curl Test for upper body strength
 - ✓ Chair Sit & Reach Test for lower body flexibility
 - ✓ Back Scratch Test for upper body flexibility

- ✓ Eight Foot Up & Go Test for agility
- ✓ Six-Minute Walk Test for Aerobic Endurance
- ✓ Johnsen – Metheny Test of Motor Educability (Front Roll, Roll, Jumping. Half-Turn, Jumping full turn)

Unit-VII : Physiology & Injuries in sports

- Physiological factors determining components of physical fitness
- Effect of exercise on the Muscular System
- Effect of exercise on the Cardio-Respiratory System
- Physiological changes due to ageing
- Sports injuries: Classification (Soft Tissue Injuries -Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminated, Transverse Oblique & Impacted)

Unit-VIII : Biomechanics & Sports

- Newton's Law of Motion & its application in sports
- Types of Levers and their application in Sports.
- Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports
- Friction & Sports
- Projectile in Sports

Unit-IX : Psychology & Sports

- Personality; its definition & types (Jung Classification & Big Five Theory)
- Motivation, its type & techniques.
- Exercise Adherence: Reasons, Benefits & Strategies for Enhancing it
- Meaning, Concept & Types of Aggressions in Sports
- Psychological Attributes in Sports – Self-Esteem, Mental Imagery, Self Talk, Goal Setting.

Unit-X: Training in Sports

- Concept of Talent Identification and Talent Development in Sports
- Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle.
- Types & Method to Develop – Strength, Endurance and Speed
- Types & Method to Develop – Flexibility and Coordinative Ability
- Circuit Training - Introduction & its importance

PRACTICAL

01. Physical Fitness Test : SAI Khelo India test/Brockport Physical Fitness Test (BPFT)*	06 Marks
02. Proficiency in Games and Sports (Skill of any one IOA recognized sport/ games of choice)**	07 Marks
03. Yogic Practices	07 Marks
04. Record File***	05 Marks
05. Viva Voice (Health / Games & sports / Yoga)	05 Marks
Total	30 Marks

**Record File shall include:

- ❖ Practical-1: Fitness tests administration.
- ❖ Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
- ❖ Practical-3: Anyone one IOA recognized Sport/Game of choice. Labeled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.

(Practical-1 & Practical-2 has to be completed for Half Yearly/PA-II. However all three practical activities have to be completed for SSCE Practical Examination)

HINDI**परीक्षा हेतु पाठ्यक्रम विनिर्देशन**

- प्रश्न - पत्र तीन खण्डों - खंड- क, ख और ग में होगा।
- खंड- क में अपठित बोध पर आधारित प्रश्न पूछे जाएँगे। सभी प्रश्नों के उत्तर देने होंगे।
- खंड- ख में अभिव्यक्ति और माध्यम पाठ्यपुस्तक के आधार पर प्रश्न पूछे जाएँगे। प्रश्नों में आंतरिक विकल्प दिए जाएँगे।
- खंड- ग में आरोह भाग - 2 एवं वितान भाग - 2 पाठ्यपुस्तकों के आधार पर प्रश्न पूछे जाएँगे। प्रश्नों में आंतरिक विकल्प दिए जाएँगे।

भारांक-8

निर्धारित समय - 03 घंटे

वार्षिक परीक्षा हेतु भार विभाजन

	खंड-क (अपठित बोध)	अंक
1	॥ अपठित गद्यांश (लगभग १०० शब्दों का) पर आधारित बोध, चिंतन, विश्लेषण पर बहुविकल्पीय प्रश्न, अतिलघूत्तरात्मक प्रश्न, लघूत्तरात्मक प्रश्न पूछे जाएँगे। (बहुविकल्पीय प्रश्न ०१ अंक $\times$ ०३ प्रश्न = ०३ अंक, अतिलघूत्तरात्मक प्रश्न ०१ अंक $\times$ ०१ प्रश्न = ०१ अंक, लघूत्तरात्मक प्रश्न ०२ अंक $\times$ ०३ प्रश्न = ०६ अंक)	॥ अंक
2	॥ अपठित पद्यांश (लगभग १०० शब्दों का) पर आधारित बोध, सराहना, सौंदर्य, चिंतन, विश्लेषण आदि पर बहुविकल्पीय प्रश्न, अतिलघूत्तरात्मक प्रश्न, लघूत्तरात्मक प्रश्न पूछे जाएँगे। (बहुविकल्पीय प्रश्न ०१ अंक $\times$ ०३ प्रश्न = ०३ अंक, अतिलघूत्तरात्मक प्रश्न ०१ अंक $\times$ ०१ प्रश्न = ०१ अंक, लघूत्तरात्मक प्रश्न ०२ अंक $\times$ ०२ प्रश्न = ०४ अंक)	॥ अंक
	खंड- ख (अभिव्यक्ति और माध्यम पाठ्यपुस्तक के आधार पर) पाठ संख्या ३, ४ तथा ५ पर आधारित	अंक
3	दिए गए ३ अप्रत्याशित विषयों में से किसी ०१ विषय पर आधारित लगभग १२० शब्दों में रचनात्मक लेखन (०४ अंक $\times$ ०१ प्रश्न)	०४ अंक
4	पाठ संख्या ३, ४ तथा ५ पर आधारित (०२ अंक $\times$ ०४ प्रश्न = ०८ अंक) (लगभग ४० शब्दों में), (०४ अंक $\times$ ०२ प्रश्न = ०८ अंक) (लगभग ८० शब्दों में) (विकल्प सहित)	०८ अंक
	खंड- ग (आरोह भाग - 2 एवं वितान भाग-2 पाठ्यपुस्तकों के आधार पर)	४० अंक
5	पठित काव्यांश पर आधारित ०४ बहुविकल्पी प्रश्न (०१ अंक $\times$ ०४ प्रश्न)	०४ अंक
6	काव्य खंड पर आधारित ०४ प्रश्नों में से किन्हीं ०२ प्रश्नों के उत्तर (लगभग ०४ शब्दों में)	०४ अंक

	(03 अंक x 02 प्रश्न)	
7	काव्य खंड पर आधारित 3 प्रश्नों में से किन्हीं 2 प्रश्नों के उत्तर (लगभग 4 शब्दों में) (02 अंक x 02 प्रश्न)	4 अंक
8	पठित गद्यांश पर आधारित 5 बहुविकल्पी प्रश्न (01 अंक x 5 प्रश्न)	5 अंक
9	गद्य खंड पर आधारित 3 प्रश्नों में से किन्हीं 2 प्रश्नों के उत्तर (लगभग 6 शब्दों में) (03 अंक x 02 प्रश्न)	6 अंक
10	गद्य खंड पर आधारित 3 प्रश्नों में से किन्हीं 2 प्रश्नों के उत्तर (लगभग 4 शब्दों में) (02 अंक x 02 प्रश्न)	4 अंक
11	वितान के पाठों पर आधारित 3 में से 2 प्रश्नों के उत्तर (लगभग 6 शब्दों में) (05 अंक x 2 प्रश्न)	10 अंक
13	(अ) श्रवण तथा वाचन (ब) परियोजना कार्य	+ = 4 अंक
कुल अंक		1 अंक

निर्धारित पुस्तकें :

1. **आरोह, भाग-2, एन.सी.ई.आर.टी., नई दिल्ली द्वारा प्रकाशित**
2. **वितान, भाग-2, एन.सी.ई.आर.टी., नई दिल्ली द्वारा प्रकाशित**
3. **‘अभिव्यक्ति और माध्यम’, एन.सी.ई.आर.टी., नई दिल्ली द्वारा प्रकाशित**

नोट - पाठ्यक्रम के निम्नलिखित पाठ हटा दिए गए हैं

आरोह भाग - 2	काव्य खंड	• गजानन माधव मुक्तिबोध – सहर्ष स्वीकारा है (पूरा पाठ) • फ़िराक गोरखपुरी – गज़ल
	गद्य खंड	• विष्णु खरे – चार्ली चैप्लिन यानी हम सब (पूरा पाठ) • रज़िया सज्जाद ज़हीर - नमक (पूरा पाठ)
वितान भाग - 2		• एन फ्रैंक - डायरी के पन्ने

कक्षा बारहवीं हेतु प्रश्नपत्र का विस्तृत प्रारूप जानने के लिए कृपया बोर्ड द्वारा जारी प्रतिदर्श प्रश्नपत्र देखें।

IMPORTANT ACTIVITIES ROUND THE YEAR 2026-27

S.N	DATE	DAY	DAYS TO BE OBSERVED	DEPARTMENT /CLUB/HOUSE	GROUP	INTRAMURAL ACTIVITIES
APRIL						
1.	01.04.26	WED	Utkal Diwas	Odia Dept &Function Dept, Music, Dance	STD VIII-X	Song, Speech, self-composed poem, short movie & guest speech
2.	14.04.26	TUE	Ambedkar Jayanti	Function Dept & Dept. of Social Science	_____	Relevant Activities
3.	15.04.2026	WED	International Art Day	Art Dept.		
4.	19.04.26	SUN	Mahatma Hansaraj's Birthday	Havan Dept, Music & Function dept	STD VIII	Havan, Speech on Importance of the day .
5.	22.04.26	WED	Earth Day	SST club & Dept of Social Science	LKG TO STD-XII	Relevant Activities & Competitions to promote the theme 'Restore our Earth'
6.	23.04.26	THU	English Language Day/World Book &Copyright Day	Dept of English &Library	LKG TO STD-XII	Webinar, Seminar poster & write ups
7.	28.04.26	TUE	Swabhiman Divas	Odia Dept.	STD-III - X	Song, Skit, Speech
MAY						
JUNE						
8.	05.06.26	FRI	World Environment Day	Eco Club	LKG TO STD-XII	Plantation
9.	19.06.26 to 18.07.2026		National Reading Day, Week, Month			
10	21.06.26	SUN	International Yoga Day	Dept of Yoga & Phy. Education	LKG TO STD-XII	Yoga by students & teachers
11			World Music Day	Dept of Music	STD-III - X	Relevant Activities
12	26.06.26	FRI	International Day against Drug abuse & illicit trafficking	Civil Defence Dept (NCC,SCOUT)	STD VI-XII	Awareness program & Relevant Activities
13	30.06.26	TUE	IFFCO DAV Foundation Day	Havan Dept , Func. Dept., Music, Dance	STD VI-XII	Havan, Competition, Blood Donation Camp
JULY						
21 to 26 JULY 2026				Periodic Assessment-1		
14	01.07.26 To 07.07.26	WED TO TUE	Van Mahotsav Week	Eco club & NCC Dept.	Club Members & STD VI TO X	LKG J & UKG (Fancy Dress) I&II(III TO V Kitchen garden) VI TO IX(Plantation Drive)
15	19.06.26 to 18.07.2026		National Reading Day, Week, Month			
16	26.07.26	SUN	Vijay Divas/Kargil Victory Day	NCC Dept. , Music	STD VI TO IX	Observation in Assembly
17	29.07.26	WED	World Tiger Day	Teachers	LKG TO STD II	PPT on conservation on TIGER, Documentary, Slogan Writing, Poster Display, Speech
18	31.07.26	FRI	Prem Chand Jayanti	Hindi		
AUGUST						
19	09.08.26	SUN	Gangadhar Meher Jayanti	Odia Dept., Music	STD III TO IX	Speech & Observation
20	17.08.26	MON	Sanskrit Divas	Dept of Sanskrit &Music	STD I – VI TO X	Shloka presentation in the assembly, speech on the importance of the day.
21	15.08.26	SAT	Independence Day	Sport Dept, Dance, Music, NCC & Function Dept.	STD I-XII	Celebration with all activities

S.N	DATE	DAY	DAYS TO BE OBSERVED	DEPARTMENT /CLUB/HOUSE	GROUP	INTRAMURAL ACTIVITIES
22	17.08.26	MON	Raksha Bandhan Eve	Function Dept., Activity Dep, Music, Dance	Std I to XI	Celebrated in the morning assembly by the Cabinet Members. Rakhi will be prepared by Activity dept. before one week Speech & Observation
23	29.08.26	SAT	National Sports Day	Sports Dept.	STD VI TO XII	Mini Marathon, Junior girls KHO-KHO, Senior balls FOOTBALL
SEPTEMBER						
15 SEPTEMBER TO 27 SEPTEMBER 2026				TERM-1/PERIODIC ASSESSMENT / HALF YEARLY		
24	01.09.26 TO 07.09.26	TUE-MON	National Nutrition week Literacy week	Health & Wellness Club All Language Depts.	STD III to XII STD III to XII	Relevant Activities Relevant Activities
25	08.09.26	TUE	International literacy day	All Language Depts & Library	STD III TO XII	Relevant Activities
26	05.09.26	SAT	Teacher's Day	School cabinet, Music & Dance	STD XI & XII	Relevant Activities
27	14.09.26 to 30.09.26	MON-WED	Hindi Pakhwada	Dept of Hindi	STD-III to X	Relevant Activities 30 Sept Valedictory Ceremony)
28	28.09.26 to 02.10.26	MON - FRI	Swachhata Bharat Abhiyan	Dept of Civil Defence (NCC)	STD IX & X LKG TO STD II	Relevant Activities
29	28.09.26	MON	Lata Mangeshkar Jayanti	Music Dept.		
OCTOBER						
30	02.10.26	FRI	Gandhi & Shastri Jayanti	Function DEPT.& Music	Function Dept.	Observation & Cultural programme
31	Date will be notified latter		Joy of Giving Week	Joy of Giving Club	School Cabinet	To conduct activities of charity
32	09.10.26	FRI	Gopabandhu Jayanti	Odia & Music Dept.	Std III TO X	Song ,speech & floral tribute in the morning assembly
33	15.10.26	THU	Birth Anniversary of Dr. APJ Kalam' – ('World Students Day') & Global Handwashing day	Science Dept & Health & Wellness Club	Std III TO XII LKG TO STD II	Quiz competition ,Painting Competition & floral tribute
34	24.10.26	SAT	Diwali Eve	Function Dept & Activity Dept	LKG TO Std XII	Eco-friendly celebration
35	31.10.26	SAT	National Unity Day(Sardar Patel's Birthday)	Dept of Social Science	Std III TO XII	Observation with all decorum & speech
NOVEMBER						
36	31.10.26 To 05.11.26	SAT – THU	Vigilance Awareness Week	House Co-ordinators (House I/C & All Clubs)	Std III TO XII	. Relevant Activities
37		SAT	Boita bandana Utsav	KG WINGS , Music & Dance	Pre-LKG To Std -II	Celebration with all
38	14.11.26	SAT	Children's Day	Function Dept , Music & Dance	Teachers	Celebration with all decorum & Cultural programme

S.N	DATE	DAY	DAYS TO BE OBSERVED	DEPARTMENT /CLUB/HOUSE	GROUP	INTRAMURAL ACTIVITIES
						Innovative and working models
39	14.11.26 TO 20.11.26	SAT - FRI	National Book Week	Library I/C	Std VI -XII	Book Exhibition.
40	19.11.26	THU	International Gents DAY	By All lady Teachers		
41	30.11.2026	MON	National Computer Security Day	Computer Dept.		
42	Last week of November to first week of December	Date will be notified latter on	PICNIC	Picnic dept.	Picnic dept.	***** ***** ***** ***** *****
DECEMBER						
01 DECEMBER TO 06 DECEMBER 2026				Periodic Test-II/Periodic Test-III		
43	Last week of November to first week of December	Date will be notified latter on	National Mathematics Day	Picnic dept.	Picnic dept.	***** ***** ***** ***** *****
44	01.12.26	TUE	Worlds AIDS Day	Health & Wellness Club	STD III TO XII	SPEECH & BADGE
45	10.12.26	THU	Human Right's day	Social Science dept.	STD VI TO IX	Speech in the morning assembly
46	14.12.26	MON	National energy conservation day	Science Dept.	STD VI TO X	Awareness programme & Relevant Activities
47	22.12.26	TUE	National Mathematics Day	Dept. of Maths.	STD III TO XII	Celebration with all decorum & Cultural programme
48	24.12.26 THU		Christmas Eve	KG, Dance	Pre-LKG to STD -XII	Celebration with all decorum
49	Fourth week December		Annual Sports	Sports Dept. Function Dept, Music & Dance	LKG TO STD XII	Relevant Events as well as cultural programmes
JANUARY						
50	10.01.27 to 16.01.27	SUN – SAT	National Road Safety Week	Dept of Civil Defence (NCC)	Std VI to X	Awareness Programme & Relevant Activities
51	12.01.27	TUE	Swami Vivekanand's Birth Anniversary - (National Youth day)	Function DEPT.	Std VI to XII	Observation with all decorum & Awareness programme
52	23.01.27	SAT	* Netaji Jayanti / Veer Surendra Sai Jayanti *Potted Plant Exhibition *Mother's rangoli & petal Designing	SST Dept, MUsic Eco Club Std Prelkg to STd -II Eco Club	STD III TO XII Pre-LKG TO STD-II	Obsevation with relevant activities& Inter house quiz Traditional design (Rangoli & petal designing) competition for mothers. Potted plant competition for students.
53	26.01.27	TUE	Republic Day	Dept of Function, Civil defence, Phy. Education, Music & House Co-ordinator	STD III TO XII	March Past and other proceedings
54	30.01.27	SAT	Martrys Day	Dept of NCC	NCC Cadets	Observation with

S.N	DATE	DAY	DAYS TO BE OBSERVED	DEPARTMENT /CLUB/HOUSE	GROUP	INTRAMURAL ACTIVITIES
						Relevant Activities
FEBRUARY						
2nd WEEK OF FEBRUARY				ANNUAL EXAMINATION		
54	12.02.27	FRI	Swami Dayanand's Birthday	Dept of Havan , Function & Dance	STD III TO XII	Havan & Prayer
55	14.02.27	SUN	Black Day	Dept of NCC	NCC Cadets	Observation with Relevant Activities
56	18.02.27	WED	Rishibodh Utsav	Dept of Havan & Function	Teachers	Havan & Prayer
57	21.02.27	THU	International Mother Tongue Day	Dept of Odia & Music	Teachers	Observation with Relevant Activities
58	28.02.27	SUN	National Science Day	Dept of Science	TEACHERS	Observation with Relevant Activities
MARCH						
59	13.03.27	SAT	Holi Eve Celebration	Dept of Function Music	Teachers	Celebration with colours
60	08.03.27	MON	International Women's Day	By all Gen's Teachers	Teachers	Celebration with all decoum
61	22.03.27	MON	World Water Day	Dept of Civil Defence (NCC)	STD VI & X	Relevant Activities on Conservation of water

PRINCIPAL

CCA SCHEDULE

MONTH	DATES	LKG/UKG	I / II	III / IV / V	VI / VII / VIII	IX / X / XI / XII
JUL	03.07.2026	-	-	Drawing & Colouring	Pencil Shading	-
	10.07.2026	-	-	-	-	Still Life Composition / Animal Shading
	17.07.2026	Colouring	Drawing & Colouring	-	Mime Act	-
AUG	07.08.2026	-	-	Pot Decoration	-	-
	14.08.2026	-	-	-	-	Innovative Idea Pitch (ATL)
	21.08.2026	-	-	One Act Play	-	Debate (English)
	28.08.2026	-	-	-	Speech (English / Odia)	-
SEPT	11.09.2026	Fance Dress (Excluding Mythological and Freedom Fighter)	-	-	-	-
	18.09.2026	-	Fance Dress (Scientist of India)	-	-	-
OCT	09.10.2026	Rhymes (Eng / Hindi / Odia)	-	-	Quiz	Live Commentary (Football / Cricket),

						Eng/Hindi
	16.10.2026	-	-	Quiz Current Affairs	Bluff Master	-
	30.10.2026	-	Story Telling (Eng / Hindi / Odia)	-	-	Quiz (Current Affairs)
NOV	06.11.2026	-	-	Autobiography (Eng/ Hindi / Odia)	-	-

Sl No	Special Events	III – XII	Date
1.	Inter House March Past & Drill Dance Competition	Annual Sports	3 rd Week of December
2.	Annual Exhibition	Day before Children's Day	13 November 2026

CCA I/C

Principal

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