

## CLASS XI

## PHYSICS

## 1. Unit/Chapter/Topics deleted from the Syllabus for 2020

UNIT	TOPICS TO BE DELETED
I	Physics: scope and excitement, nature of physical laws, Physics, technology and society.
II	Frame of reference, Motion in a straight line: Position – time graph, speed and velocity. Unit vector. Resolution of a vector in a plane – rectangular components.
III	Intuitive concept of force. Inertia, Newton's first law of motion, momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.
IV	Kinetic energy, Notion of potential energy, potential energy of a spring.
V	Values of M.I for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their application.
VI	Kepler's laws of planetary motion, Acceleration due to gravity.
VII	Elastic behaviour, shear, modulus of rigidity, Poisson's ratio; elastic energy. Heat, temperature. Heat transfer-conduction, convection and radiation.
VIII	Reversible and irreversible processes. Heat engines and refrigerators.
X	Wave motion. Longitudinal and transverse waves, speed of wave motion. Displacement relation for a progressive wave. Principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.

## 2. Practicals - 30 Marks:

The following points shall be given to the students in lieu of practical classes/examination by the institutions:

- Students shall write at least 6 (six) experiments from each section (i.e Section A & B) in their practical record book.
- Students shall record apparatus, theory, formula, procedures and table for each experiment in the practical record book.
- Students while writing experiment shall draw all the apparatus/equipments to be used in the experiment in their record book.
- Teachers shall give some probable values where students can use it and solve it using the formula given in the experiments.
- Besides the activities given in the syllabus, teachers should encourage the students to try/practice other activities related to the subject which can be done at home.
- All activities performed shall be recorded in their record book.
- Teachers shall constantly guide the students for their practical/activities.
- Questions which test understanding or application of the experiment should be given by the teachers in place of viva for students to answer and record in their practical record book.

## Evaluation Scheme for Practical Assessment:

1.	Six experiment from each section		9+9=18 marks
2.	Activities from each section	3+3=	6 marks
3.	Practical record book (experiments & activities)	3+3=	6 marks

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**Total**                      **30 marks**

**Note:** The unit-wise weightage remains the same as given in the Syllabus.

## CHEMISTRY

### 1. Unit/Chapter/Topics deleted from the Syllabus for 2020

UNIT	TOPICS TO BE DELETED
I	General Introduction: Importance and scope of chemistry. Historical approach to particulate nature of matter, Dalton's atomic theory: concept of elements, atoms and molecules.
II	JJ Thompson's model and its limitation, Rutherford's model and its limitations.
III	Significance of classification, brief history of the development of periodic table.
IV	Bond parameters, Hydrogen bonding
V	Kinetic energy and molecular speeds (elementary idea). Liquefaction of gases, critical temperature. Liquid state- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations).
VI	Third law of thermodynamics-brief introduction.
VII	Hydrolysis of salt (elementary idea).
VIII	Applications of redox reactions.
IX	Occurrence of Hydrogen, hydrogen as fuel.
X	General introduction, occurrence. Preparation and properties of some important compounds: Sodium carbonate, sodium chloride, sodium hydroxide and sodium hydrogen carbonate, biological importance of sodium and potassium. CaO, CaCO and industrial use of lime and limestone, biological importance of Mg and Ca.
XI	Group 13 elements: General introduction, occurrence. Aluminium: uses, reactions with acids and alkalis. Group 14 elements: General introduction, occurrence. Uses of some important compounds: oxides.
XII	Unit shall be deleted.
XIII	Alkanes: Free radical mechanism of halogenation, combustion and pyrolysis. Alkenes: mechanism of electrophilic addition. Aromatic hydrocarbon: Direct influence of functional group in mono-substituted benzene, carcinogenicity and toxicity.
XIV	Unit shall be deleted.

### 2. Unit – wise Weightage (Redistributed Marks) for 2020

Theory Paper

Time: 3 hours

Marks: 70

Unit	Topics	Marks
I	Some Basic Concepts of Chemistry	3
II	Structure of Atom	7
III	Classification of Elements and Periodicity in Properties	5
IV	Chemical Bonding and Molecular Structure	7
V	States of Matter: Gases and Liquid	5
VI	Thermodynamics	7
VII	Equilibrium	7
VIII	Redox Reactions	4
IX	Hydrogen	4
X	s- Block Elements	6
XI	Some p- Blocks Elements	7
XIII	Hydrocarbons	8

**Total**

**70**

### 3. Practicals :

C. Experiments related to pH change: All experiments under this shall be deleted.

D. Chemical Equilibrium: All experiments under this shall be deleted.

**Evaluation Scheme for Practical Examination** shall remain the same.

### 4. Internal Assessment:

The following points shall be given to the students in lieu of practical classes/examination by the institutions:

1. Students shall write all the procedures, observations, inferences and confirmations/results in their practical record book.
2. Students shall also draw all the apparatus to be used in salt analysis/qualitative analysis experiment in their record book.
3. Students shall write theory, reactions involved, procedures, observations, readings in the table and calculation etc. in their practical record book for volumetric analysis.
4. Students shall draw all apparatus to be used in volumetric analysis in their record book.
5. Teachers shall give some probable values for reading table in volumetric analysis so that students can use it for calculation and they may give a probable answer from the calculations.
6. Students shall write at least 3 (three) content based experiments with all requirements for the experiments and draw all apparatus to be used for experiments in their record book.
7. Besides the projects/activities given in the syllabus, teachers should encourage the students to try/practice other projects/activities related to the subject which can be done at home.
8. Teachers shall constantly guide students while doing projects/activities.
9. All projects/activities performed shall be recorded in their practical record book.
10. Teachers should give questions which tests understanding or applications of each experiment in place of viva for students to answer and record in their practical record book.

### Evaluation Scheme for Practical Assessment:

1. Volumetric Analysis	6 marks
2. Salt Analysis	6 marks
3. Content based Experiment	6 marks
4. Project/Activities	7 marks
5. Class Record/Viva	5 marks
<b>Total</b>	<b>30 marks</b>

## BIOLOGY

### 1. Unit/Chapter/Topics deleted from the Syllabus for 2020

#### Unit I- Diversity in living world

##### **Chapter 1: The living world:**

What is living? Biodiversity; Need for classification; Three domain of life; Taxonomy & systematic; Concept of species and taxonomical hierarchy; Binomial nomenclature; Tools for study of taxonomy- museums, zoos, herbaria, botanical gardens.

##### **Chapter 3: Plant kingdom:**

Angiosperms- classification up to class, characteristic features and examples.

#### Unit II- Structural organisation in animals and plants

##### **Chapter 5: Morphology of flowering plants/ Chapter 6: Anatomy of flowering plants:**

Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence – cymose and racemose, flower, fruit and seed.

**Chapter 7: Structural organisation in animals:**

Animal tissues; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach).

**Unit IV- Plant physiology****Chapter 11: Transport in plants:**

Movement of water, gases and nutrients; Cell to cell transport- Diffusion, facilitated diffusion, active transport; Plant-water relation- Imbibition, water potential, osmosis, plasmolysis; Long distance transport of water- Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; Transpiration- Opening and closing of stomata; Uptake and translocation of mineral nutrients- Transport of food, phloem transport, mass flow hypothesis; Diffusion of gasses.

**Chapter 12: Mineral nutrition:**

Essential minerals, macro and micronutrients, and their role; Deficiency symptoms; Mineral toxicity; Elementary idea of hydroponics as a method to study mineral nutrition; Nitrogen metabolism- nitrogen cycle, biological nitrogen fixation.

**Chapter 14: Respiration in plants:**

Respiratory quotient.

**Unit V- Human physiology****Chapter 18: Body fluids and circulation**

Composition of blood, blood groups, coagulation of blood; Composition of lymph and its function; Human circulatory system- Structure of human heart and blood vessels; Cardiac cycle, cardiac output, ECG; Double circulation; Regulation of cardiac activity; Disorders of circulatory system- Hypertension, coronary artery disease, angina pectoris, heart failure.

**Chapter 20: Locomotion and movement:**

Types of movement- ciliary, flagellar, muscular, skeletal muscle- contractile proteins and muscle contraction; Skeletal system and its functions; Joints; Disorders of muscular and skeletal system- Myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

**Chapter 21: Neural control and coordination:**

Neuron and nerves; Nervous system in humans- central nervous system, peripheral nervous system and visceral nervous system; Generation and conduction of nerve impulse; Reflex action; Sensory perception; Sense organs; Elementary structure and function of eye and ear.

**2. Unit-wise weightage (Redistributed Marks) for 2020**

Theory paper

Time: 3 hrs

Marks:70

**Unit****Marks**

I. Diversity in Living World

10

III. Cell Structure and Function

24

IV. Plant physiology

18

V. Animal physiology

18

**Total: 70**

Unit		Section-A	Section-B	Marks
I	Diversity in Living World	4	6	10
III	Cell Structure and Function	12	12	24
IV	Plant physiology	18	-	18
V	Animal physiology	-	18	18
			Total	70

**3. Internal (Practical) Marks: 30**

**A. List of experiments/spotting**

1. To demonstrate the process of osmosis by using potato osmometer.
2. Study of plant specimens and their identifications with reasons (Mushroom, Moss, Fern, Lichens etc).
3. Study of animal specimens and their identifications with reasons (Earthworm, Silkworm, Honeybee, Snail, Frog etc).
4. To demonstrate the phenomenon of imbibitions.
5. Observation and comments on experimental set up for showing: Demonstration of phototropism.
6. Observation and comments on experimental set up for showing: To demonstrate apical bud removal.

**B. Prepare a model on the topic of your choice and make a video presentation of it.**

(The video should be of minimum 5 mins and maximum 10 mins).

**N.B-**

- *All experiments performed shall be recorded in their practical record book.*
- *Apart from practical experiments given in the syllabus, the teacher can implement other experiments/activities relevant to the subject to encourage the students in learning at home.*

**Evaluation scheme for practical assessment:**

**Marks**

A. Two experiments	7x2=14
B. Videography presentation	10
C. Practical record and Viva	6
<b>Total</b>	<b>30</b>

**MATHEMATICS**

**1. Unit/Chapter/Topics deleted from the Syllabus for 2020**

Unit 1: Sets and Functions

**3. Trigonometric Functions**

General solution of trigonometric equations of the type  $\sin \theta = \sin \alpha$ ,  $\cos \theta = \cos \alpha$  and  $\tan \theta = \tan \alpha$ . Proofs and simple applications of sine and cosine formulae.

Unit II: Algebra

**1. Principle of Mathematical Induction**

Delete full chapter.

**2. Complex Numbers and Quadratic Equations**

Solution of quadratic equations in the complex number system, Square-root of a complex number.

**3. Linear Inequalities**

Solution of system of linear inequalities in two variables.

**4. Permutations and Combinations**

Derivation of formulae for  ${}^n P_r$  and  ${}^n C_r$

**5. Binomial Theorem**

Delete full chapter.

## 6. Sequence and Series

Sequence and Series [i.e. Ex: 9.1]. Arithmetic Progression (A.P.), Arithmetic Mean (A.M.) [i.e. Ex: 9.2].

Sum to  $n$  terms of the special series:  $\sum n$ ,  $\sum n^2$  and  $\sum n^3$

### Unit III: Coordinate Geometry

#### 1. Straight Lines

Shifting of origin. Equation of family of lines passing through the point of intersection of two lines.

#### 2. Conic Sections

A point, a straight line and pair of intersecting lines as a degenerated case of a conic section.

Standard equations and simple properties of parabola and hyperbola.

#### 3. Introduction to Three-dimensional Geometry

Distance between two points.

### Unit IV: Calculus

#### Limits and Derivatives

$$\lim_{x \rightarrow 0} \frac{\log_e(1+x)}{x}, \lim_{x \rightarrow 0} \frac{e^x - 1}{x}.$$

### Unit V: Mathematical Reasoning

#### Mathematical Reasoning

Delete full chapter

### Unit VI: Statistics and Probability

#### 1. Statistics

Analysis of frequency distributions with equal means but different variances.

#### 2. Probability

Axiomatic (set theoretic) probability, connections with the theories of earlier classes.

## 2. Unit-wise weightage (Redistributed Marks) for 2020

Sl.No.	Units	Marks
1.	Sets and Functions	20
2.	Algebra	30
3.	Coordinate Geometry	13
4.	Calculus	7
5.	Statistics and Probability	10
Total :		80

## 3. Internal Assessment : 20 Marks

The aim of the internal assessment is to find out areas for improvement and assess the student comprehensively. The areas to be internally assessed are:

Sl.No.	Parts of Internal Assessment	Marks
1.	Periodic Tests (Best 2 out of 3 tests conducted)	10
2.	Portfolio	5
3.	Mathematics Activities	5
Total:		20

**Note:** For Mathematics Activities, NCERT Lab Manual may be referred whose pdf is available on the link:

<https://ncert.nic.in/science-laboratory-manual.php?ln=>

## 1. Periodic Tests (10 Marks)

The main purpose of the Periodic Assessment is to assess the learning progress of students. This should be done at regular intervals which will give feedbacks and insight to teachers regarding learners' needs and helps them to improve instruction, do remedial teaching and set curricular targets for a student or a group of students. The feedback will also help students know their errors as well as strengths and weaknesses.

Periodic Tests should be restricted to 3 in an academic year and the average of the best 2 would be taken for final submission of marks. These tests should follow the pattern similar to the final examination and have a gradually increasing portion of content. This should prepare the students for final examination in a more confident manner.

Once schools complete the conduct of all the three periodic tests, they will convert the weightage of each of the three tests into ten marks each for identifying the best two test marks. The best two will be taken into consideration and the average of the two shall be taken as the final marks for Periodic Tests.

In tune with the purpose of periodic assessment i.e. to provide feedback to improve teaching and learning, it becomes of equal importance to use follow-up measures in case students are found deficient in the proficiency of relevant learning outcomes.

## **2. Portfolio (5 Marks)**

The creation of portfolios is suggested to broaden the scope of learning and achieve diverse curriculum outcomes by examining a range of evidence of student performances being assessed.

A portfolio is a purposeful collection of intentionally chosen student's work representing a selection of performances that is assembled over time and describes the learner's efforts, progress, growth and achievement in key areas learning outcomes. It is a tool for assessing a variety of skills not usually testable in a single setting of the traditional written paper and pencil tests. The assessment would include self and peer assessment among others. Its use is recommended as a support to the new instructional approaches that emphasize student's role in constructing knowledge and understanding.

This portfolio can be seen both as a process and as a product: As a product, it holds the performance records and documents, a student has produced during the learning course and represents a collection of their learning achievements. As a process, it enables learners to monitor their own learning systematically, reflect on their performance, redirect their efforts and set future goals.

In a general sense, a portfolio:

- offers the possibility of assessing more complex and important aspects of a learning areas or subject matter that can't be assessed through traditional forms of testing;
- provides a profile of learner's abilities – in-depth growth and progress
- serves as a concrete vehicle for an ongoing communication or exchange of information and feedback among various stakeholders – students, peers teachers, administrators. It may even be used to compare achievement across classrooms or schools;
- serves as a lens and helps to develop among students an awareness of their own learning. The focus on self assessment and reflection helps students to identify their strengths and weaknesses thereby facilitating setting up of realistic improvement goals. The active role that students plays in examining what they have done and what they want to accomplish, not only motivates them but also help to develop meta-cognitive skills which enable them to make adjustments not only in their learning in school but beyond as well;
- provide an opportunity to share own learning with peers and review and give feedback on each other's work. Peer Assessment thus becomes a great support that further facilitates a clear understanding and evaluation of personal goals;

Thus, a portfolio, on one hand helps to establish a common vision of goals and holistic picture of students learning, on the other, increases accountability and contributes to improved teaching and learning.

### **Preparation of a portfolio**

At the outset, it is important to know why a portfolio is being created and be clear of the purposes. It is suggested that the portfolios be an extension of notebooks. They would include classwork and homework assignments that would help evaluate learner's progress. Besides this, portfolio should be a space for the student to display his/her recordings of Mathematics Activities. The attention should be to promote techniques such as annotation, identification of key words / topics / themes, summarization and organization of ideas and content.

The sample of creative work and evidence that demonstrate process skills or development of critical thinking or problem-solving merit inclusion as well. A periodic review of the evidences included in the portfolio would facilitate self-assessment by learners who would be more aware of their own learning and be able to identify their strengths and weaknesses. The portfolio also provides an opportunity to learners to share and comment on each other's work. Such peer assessment facilitates understanding of criteria of good work to students. It is advised that such criteria be developed and made clear to students. Initially, this self and peer assessment would be a guided endeavour.

### **Assessing Portfolios**

Students' portfolio can be effectively evaluated using a simple scoring rubric. The criteria – the factors to be used in determining the quality of a particular student's portfolio needs to be carefully developed and shared with students. The key elements of the particular criteria need to be specified as well. Suggested are some elements to judge student's portfolio:

- Organization – Neatness and Visual Appeal
- Completion of guided work focused on specific curricular objectives
- Evidences of student's growth
- Inclusion of all relevant work (Completeness)

Teachers can include other relevant criteria and elements to assess portfolios.

**A Word of Caution:** Portfolios need to be developed in an easy to manage form. They need to be meaningful but simple and accessible. Developing them should not be a burden on students- both in terms of cost and time.

### **3. Mathematics Activities (5 marks):**

Throughout the year, students are expected to perform activities from the NCERT Laboratory Manual for the respective classes which is available on their website. Students shall record activities in their portfolios. The marks can be awarded based on the performance of the students while carrying out the activities. Teachers have the autonomy to include other relevant criteria and elements to award these 5 marks.

## **4. Design of the Question Paper**

### **Weightage to different forms of questions**

Sl.No.	Forms of questions	Marks for each question	No. of questions	Total marks
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1.	MCO	1	8	8
2.	SA – I	2	8	16
3.	SA – II	4	8	32
4.	LA	6	4	24
Total:			28	80

#### Weightage level of questions

Sl.No.	Level	Percentage	Marks
1.	Easy	30	24
2.	Average	50	40
3.	Difficult	20	16
Total:		100	80

#### Expected time taken for different forms of questions:

Sl.No.	Forms of questions	No. of questions	Expected time for each question	Total expected time
1.	Reading the question paper	-	-	10 minutes
2.	MCO	8	3 minutes	24 minutes
3.	SA – I	8	5 minutes	40 minutes
4.	SA – II	8	7 minutes	56 minutes
5.	LA	4	10 minutes	40 minutes
6.	Revision	-	-	10 minutes
Total time:				180 minutes

## COMPUTER SCIENCE

### Unit/Chapter/Topics deleted from the Syllabus for 2020

UNIT	Deletion from the Syllabus
1	Chapter-1 Computer Fundamentals
III	Chapter-2 (Problem Solving Methodology and Techniques)
IV	Chapter-2 (Device and Character I/O) The following functions maybe removed getch(),getche(),putc() getchar(),putchar() gets(),puts() Chapter - 5 Manipulation of array elements (One and two dimensional array). Passing structure to function, function returning structure, array of structure. Defining a symbol

**Note:** The unit-wise weightage, internal marks and areas of assessment remains the same as given in the Syllabus.

## INFORMATIC PRACTICES

### Unit/Chapter/Topics deleted from the Syllabus for 2020

UNIT-2	<p><u>INTRODUCTION TO PROGRAMMING</u> <u>Programming Fundamentals</u></p> <ul style="list-style-type: none"> <li>• Integer object method: parseInt</li> <li>• Double object method : parseFloat, parseFloat</li> <li>• Control Structures: Decision Structure- If, if-else, switch; Looping Structures – while, do...while, for;</li> </ul>
UNIT-3	<p><u>RELATIONAL DATABASE MANAGEMENT SYSTEM</u> <u>Database Management System</u></p> <ul style="list-style-type: none"> <li>• Keys: Candidate key, Primary key, alternate key, Foreign key;</li> <li>• Examples of common Database Management system: My SQL, Ingres, Postgres, Oracle, DB2, MS SQL, Sybase etc; Common Database Management tools for mobile devices.</li> </ul>
UNIT-3	<p><u>Introduction to MySQL</u></p> <ul style="list-style-type: none"> <li>• Working with NULL VALUES</li> <li>• ORDER BY clause: Sorting in Ascending/Descending order, sorting by column alias name, sorting on multiple columns;</li> <li>• Manipulating Data of a Table/ Relation: Update command to change existing data of a table, delete command for removing row(s) from a table.</li> <li>• Restructuring a table: ALTER TABLE for adding new column(s) and deleting column(s);</li> </ul>
UNIT-3	<p><u>Functions in My SQL:</u></p> <ul style="list-style-type: none"> <li>• Mathematical Functions: POWER(), ROUND(), TRUNCATE()</li> <li>• Date and Time Functions: CURDATE(), DATE(), MONTH(), YEAR(), DAYNAME(), DAY OF MONTH(), DAY OF WEEK(), DAY OF YEAR(), NOW(), SYSDATE().</li> </ul>

**Note:** The unit-wise weightage, internal marks and areas of assessment remains the same as given in the Syllabus.