

**REDUCED SYLLABUS
&
SCHEME OF EXAMINATIONS
AND QUESTION DESIGN
for
H.S.S.L.C. EXAMINATION**

2020 – 2021



**MIZORAM BOARD OF SCHOOL EDUCATION
AIZAWL : 796 012**

MIZORAM BOARD OF SCHOOL EDUCATION
AIZAWL : 796 012

Dated Aizawl, the 7th August, 2020

NOTIFICATION


No. J.11016/1/2018-MBSE(Acad)/16 : It is notified for the information of all High Schools & Higher Secondary Schools that in view of the long closure of schools due to relentless spreading of Covid – 19 pandemic resulting in the extreme loss of classroom instructional time, the 83rd Meeting of the Syllabus Committee of the Board, held on 5th August, 2020 had resolved to reduce the syllabus of High School & Higher Secondary School by 30% (Thirty percent) from the existing course. As such, all High Schools & Higher Secondary Schools are hereby directed to adopt their respective reduced syllabus for the academic session 2020 – 2021 as enclosed herewith.

The reduced syllabi are also available on the Board's official website www.mbse.edu.in.

Sd/- LALTHANGBIKA
Secretary
Mizoram Board of School Education

Memo No. No. J.11016/1/2018-MBSE(Acad)/16 :: Dated Aizawl, the 7th August, 2020
Copy to :

1. The Commissioner & Secretary to Govt. of Mizoram, School Education Department and Controlling Authority of the MBSE, Aizawl.
2. The Director, School Education Department, Govt. of Mizoram, Aizawl.
3. The Principal, Institute of Advanced Study in Education, Aizawl.
4. The Controller of Examinations, MBSE.
5. Regional Officer, MBSE Regional Office, Lunglei.
6. All District Education Officers, Govt. of Mizoram, for information, with a request to circulate to all Secondary Schools & Higher Secondary Schools under their jurisdiction.
7. System Administrator MBSE, for uploading in the official website.
8. All others concerned.
9. Guard File I.


(R. LALTHLAMUANA)
Director (Academic)
Mizoram Board of School Education

Subject : English

Class : 11

Unit	Topic / Portion Deleted for 2020-2021 academic session	Percentage
3.2	Section – B : Writing Skills 1. Letter Writing Business or Official letters for making enquiries, asking for and giving in orders and sending replies 2. Article Writing 3. Short composition (Poster)	
3.3	Section – C : Grammar Modals, Re-ordering of sentences, Error correction	
3.4	Section – D : Literature Textbook – Hornbill (Prose) : 1) The Adventure 2) The Brawning Version (Poetry): 1) Father to Son 2) Laburnum Top Textbook – Snapshots: 1) The Ghot of the Only World 2) Summer of the Beautiful White Horse 3) The Tale of Melon City	
	Total	30 %

Weightage to content area of Selected portion :

Unit	Topic / Portion Selected for 2020-2021 academic session	Mark
3.1	Section – A : Reading Skills 1. Unseen Passage Type I 2. Unseen Passage Type II	16
3.2	Section – B : Writing Skills 1. Letter Writing : 1) Complaints 2) Application for a job 2. Report Writing 3. Short Compilation (Advertisements, Notice)	20
3.3	Section – C : Grammar 1) Tenses 2) Determiners 3) Punctuations	34

3.4	<p>Section – D : Literature (marks for each question same as before)</p> <p>Textbook – Hornbill:</p> <ul style="list-style-type: none"> * The Portrait of a Lady * We're Not Afraid to Die...If we can all be together * Discovering Tut :The Saga Continues * Landscape of the Soul * The Ailing Planet: The Green Movement's Role * Silk Road <p>Poetry Section:</p> <ul style="list-style-type: none"> * A Photograph * The Voice of the Rain * Childhood <p>Textbook – Snapshots:</p> <ul style="list-style-type: none"> * The Address * Ranga's Marriage * Albert Einstein at School * Mother's Day * Birth <p>Note : Weightage to Objectives of Learning, Form of Questions and Weightage to Content Area are same as before.</p>	09
	Total	80

Weightage to form of questions :

Sl No.	Type of questions	No. of questions	Mark for each question	Total
1	Objective type	16	01	16
2	Short Answer I	12	02	24
3	Short Answer II	2/1	3/4	10
4	Long Answer I	04	05	20
5	Long Answer II	01	10	10
	Total	36		80

Sample Blueprint : **No Change**

Sample Blueprint**: No Change Subject : Mizo****Class : 11**

Unit	Topic / Portion Deleted for 2020—2021 academic session	Percentage
I Hla (Poetry)	Ram hmangaihna by R.L. Kamlala	
	Lenna khua hmun lo by Lalzova	
	Khawngai hnuchham by Vankhama	
	Lei mite hun bi an chhiar e by Rokunga	
	Ka lungkham by Vanlalbeli	
II Thu (Prose)	Khawvel mawi hi by R. Lalzarmawia	
	Mizo ka ni ka zak dawn lo by James Dokhuma	
	Mizo tawng khawvel by C.Sangzuala	
	Anni leh keini by Siamkima Khawlhling	
	Ram nghahfak chu keimahni by Lalrintluanga	
	Nunna tui by C.Lalnunnema	
Rapid Reader	CC.Coy. No. 27 by Zikpuii Pa	
Total		30 %

Weightage to content area :

Unit	Topic Selected for 2020—2021 academic session	Mark
I Hla (Poetry)	Ka va ngai em Lal ram ropui by Hleia	18 Marks (6+4+2+2+1+1+1+1)
	Pathian ralthuam hmangtute chu by Saihnuna	
	Piallei hmun rem kan bel by Dozinga	
	Chhingkhual Thalengheri by Laltanpuia	
	Nungchate by R. Rochungnunga	
	German Run Zai	
II Thu (Prose)	Hmangaihna by Lalhmingliana Saiawi	18 Marks (6+4+2+2+1+1+1+1)
	Mi puitling by Lalena	
	Zoram par mawi by C. Rokhuma	
	Mizo tlangval rual leh Japan ral by Zokima	
	Mizo hnam leh sakhua by Lalrinawma	
	Chanchin Tha malsawmna by Z.T. Sangkhuma	
III Lemchan (Drama)	Hausakna nun dik tak by Chawngzika	14 Marks (6+2+2+2+1+1)

IV Thawnthu Tawi	Lali (Lalawmpuii) by Biakliana	14 Marks (6+2+2+2+1+1)
V Grammar & Composition	Mood	1 + 1
	Tawng upa	1 + 1
	Report ziah dan	4
	Minute ziah dan	4
	Thu lâk tawi dan (Precis writing)	4

Weightage to form of questions :

Sl/No.	Type of questions	No. of questions	Mark for each question	Total
1	Objective type	16	1	16
2	Short Answer	10	2	20
3	Long Answer I	5	4	20
4	Long Answer II	4	6	24
	Total	35		80

Sample Blue Print : Mizo - 11

Forms of Question/ Topic	Knowledge				Comprehension				Expression				HOTS				Evaluation				Total
	Obj (1m)	SA (2m)	LA I 4(m)	LA II (5m)	Obj (1m)	SA (2m)	LA I (4m)	LA II (5m)	Obj (1m)	SA (2m)	LA I (4m)	LA II (5m)	Obj (1m)	SA (2m)	LA I (4m)	LA II (5m)	Obj (1m)	SA (2m)	LA I (4m)	LA II (6m)	
Poetry	2(2)				2(2)	2(1)						6(1)			4(1)			2(1)			18(8)
Prose	2(2)				2(2)	2(1)						6(1)			4(1)			2(1)			18(8)
Drama	2(2)	4(2)										6(1)		2(1)							14(6)
Fiction		2(1)				2(1)		6(1)	1(1)	2(1)			1(1)								14(6)
Grammar & Composition			4(1)				4(1)		3(3)		4(1)		1(1)								16(7)
Sub - total	6(6)	6(3)	4(1)		4(4)	6(3)	4(1)	6(1)	4(4)	2(1)	4(1)	18(3)	2(2)	2(1)	8(2)			4(2)			80(35)
Total		16(10)				20(9)				28(9)				12(5)				4(2)			

Note : 1) The figure in the bracket denotes the number of questions

2) This is only a sample Blue Print. The question setter may develop his/her own Blue Print as per the question design

Units	Topic/Portion deleted
Unit I: Computer Systems and Organisation	<ul style="list-style-type: none">● Encoding Schemes : UTF8, UTF32● Concept of cloud computing and cloud services (SaaS,IaaS,PaaS), cloud (public/private), Blockchain technology● Boolean logic: NOT, AND, OR, NAND, NOR, XOR, NOT, truth tables and De Morgan's laws, Logic circuits● Encoding Schemes : ASCII, ISCII and Unicode
Unit II: Computational Thinking and Programming - 1	<p>Decomposition – concept, need for decomposing a problem, examples of problem solving using decomposition.</p> <ul style="list-style-type: none">● Sorting algorithm: bubble and insertion sort; count the number of operations while sorting.● using flowcharts, suggested programs: calculation of simple and compound interests, finding the factorial of a positive number etc <p>Suggested Practical List Input a list of elements, sort in ascending/ descending order using Bubble/ Insertion sort</p>
Unit-III: Society, Law and Ethics	<ul style="list-style-type: none">●Intellectual property rights, plagiarism, digital rights management, and licensing (Creative Commons, GPL and Apache), open source, open data, privacy. <p>Technology and society:</p> <ul style="list-style-type: none">●understanding of societal issues and cultural changes induced by technology.●E-waste management: proper disposal of used electronic gadgets.●Identity theft, unique ids and biometrics.●Gender and disability issues while teaching and using computers.

Revised Computer Science
CLASS-11
THEORY: 70 MARKS

Learning Outcomes

- Ability to understand and apply basic computational thinking.
- Ability to understand the notion of data types and data structures and apply in different situations.
- Ability to appreciate the notion of an algorithm and apply its structure including how algorithms handle corner cases.
- Ability to develop a basic understanding of computer systems - architecture, operating system, mobile and cloud computing.
- Ability to work in the cyber world with understanding of cyber ethics, cyber safety and cybercrime.
- Ability to make use the value of technology in societies, gender and disability issues and the technology behind biometric ids.

Distribution of Marks

Unit No.	Unit Name	TheoryMarks
I	Computer Systems and Organisation	10
II	Computational Thinking and Programming - 1	45
III	Society, Law and Ethics	15
Total		70

Unit I: Computer Systems and Organisation

10 Marks

- Basic computer organisation: description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery.
- Types of software: Application software, System software and Utility software.
- Memory Units: bit, byte, MB, GB, TB, and PB.
- Number System: numbers in base 2, 8, 16 and binary addition.
- Concept of Compiler and Interpreter
- Operating System (OS) - need for an operating system, brief introduction to functions of OS, user interface

Unit II: Computational Thinking and Programming – 1

45 Marks

Introduction to Problem solving: Problem solving cycle - Analysing a problem, designing algorithms and representation of algorithm using flowchart and pseudo-code.

Familiarization with the basics of Python programming: a simple “hello world” program, the process of writing a program (Interactive & Script mode), running it and print statements; simple data-types: integer, float and string.

- Features of Python, Python Character Set, Token & Identifiers, Keywords, Literals, Delimiters, Operators.
- **Comments:** (Single line & Multiline/ Continuation statements), Clarity & Simplification of expression
- Introduce the notion of a variable and methods to manipulate it (concept of L-value and R-value even if not taught explicitly).
- **Knowledge of data types and operators:** accepting input from the console, assignment statement, expressions, operators and their precedence.
- **Operators & types:** Binary operators-Arithmetic, Relational Operators, Logical Operators, Augmented Assignment Operators.
- Execution of a program, errors- syntax error, run-time error and logical error.
- **Conditional statements:** if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number.
- **Notion of iterative computation and control flow:** for(range(),len()), while,
- **Strings:** Traversal, operations – concatenation, repetition, membership; functions/methods–len(), capitalize(), title(), upper(), lower(), count(), find(), index(), isalnum(), islower(), isupper(), isspace(), isalpha(), isdigit(), split(), partition(), strip(), lstrip(),rstrip(), replace(); String slicing.
- **Lists:** Definition, Creation of a list, Traversal of a list. Operations on a list - concatenation, repetition, membership; functions/methods–len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), min(), max(), sum(); Lists Slicing; Nested lists; finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list.
- **Tuples:** Definition, Creation of a Tuple, Traversal of a tuple. Operations on a tuple - concatenation, repetition, membership; functions/methods –len(), tuple(), count(), index(), sorted(), min(), max(), sum(); Nested tuple; Tuple slicing; finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple.
- **Dictionary:** Definition, Creation, Accessing elements of a dictionary, add an item, modify an item in a dictionary; Traversal, functions/methods – len(), dict(), keys(), values(), items(), get(), update(), del(), del, clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted() copy(); Suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them.
- **Introduction to Python modules:** Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange),

Unit III: Society, Law and Ethics

15 Marks

- **Cyber safety:** safely browsing the web, identity protection, confidentiality, social networks, cyber trolls and bullying.
- **Appropriate usage of social networks:** spread of rumours, and common social networking sites (Twitter, LinkedIn, and Facebook) and specific usage rules.
- **Safely accessing web sites:** adware, malware, viruses, Trojans
- **Safely communicating data:** secure connections, eavesdropping, phishing and identity verification.

- **Privacy laws, fraud;** cyber-crime- phishing, illegal downloads, child pornography, scams; cyber forensics, IT Act, 2000.

Sample Blue Print : Computer Science - 11

Units	Forms of Question/ Topic	Knowledge			Understanding			Application			HOTS			Total
		Obj	SA	LA	Obj	SA	LA	Obj	SA	LA	Obj	SA	LA	
1	Computer Ssystem and Organisation	1(1)	2(1)		1(1)				2(1)		1(1)		3(1)	10(6)
2	Computational thinking and Programming	3(3)	6(3)	6(2)	2(2)	4(2)	6(2)	1(1)	2(1)	6(2)	1(1)	2(1)	6(2)	45(22)
3	Society, Law and Ethics	1(1)	2(1)		1(1)	4(2)	3(1)	1(1)	2(1)		1(1)			15(9)
	Sub - total	5(5)	10(5)	6(2)	4(4)	8(4)	9(3)	2(2)	6(3)	6(2)	3(3)	2(1)	9(3)	70(37)
	Total		21(12)			21(11)			14(7)			14(7)		

Note : 1) The figures in the bracket denotes the number of questions.

2) This is only a sample Blue Print. The question setter may develop his/her own Blue Print as per the question design.

SUBJECT : Computer Science (Practical)

Max. marks : 10

Class : 11

Time : 3 hours

No. of paper : 1(One)

There must be three sets of questions for practical in Python programming. Students have to choose one set of question and tested in computer during examination.

1. **Programming in Python** : 8 marks
 - a. Marks are allotted on the basis of the following
 - i. Logic : 5 marks
 - ii. Output presentation : 3 marks
2. **Viva Voce** : 2 marks

Suggested Practical List for Python

Programming 1) Input a welcome message and display it.

- 2) Input two numbers and display the larger / smaller number.
- 3) Input three numbers and display the largest / smallest number.
- 4) Given two integers x and n, compute x^n .
- 5) Write a program to calculate the surface area of a sphere using the formula Surface Area $S = 4\pi r^2$
- 6) Write a program to demonstrate the working of if...else statement.
- 7) Write a program to input the value of x and n and print the sum of the following series:
 - a) $1 + 2 + 3 + \dots + n$
 - b) $x + x^2 + x^3 + x^4 + \dots + x^n$
 - c) $x/1 + x^2/2 + x^3/3 + x^4/4 + \dots + x^n/n$
 - d) $1! + 2! + 3! + \dots + n!$
- 8) Input a number and check if the number is odd or even number
- 9) Determine whether a number is a palindrome or not.
- 10) Display the terms of a Fibonacci series.
- 11) Count and display the number of characters in a string.
- 12) Input a string and convert all characters to upper case.
- 13) Find the largest/smallest number in a list/tuple.
- 14) Write a program to swap two numbers.
- 15) Write a program to illustrate user defined function in python.
- 16) Input a list/tuple of elements, search for a given element in the list/tuple.
- 17) Create a dictionary with the roll number and name of n students in a class and display.

Unit	Topic / Portion deleted for 2020-2021 academic session
I-Sets and Functions	<p>1. Sets: Difference of sets, complement of a set, properties of complement sets.</p> <p>2. Relations and Functions: Cartesian product ($R \times R \times R$). Sum, difference, product and quotient of functions.</p> <p>3. Trigonometric Functions: General Solution of trigonometric equation of type $\sin \theta = \sin \alpha$, $\cos \theta = \cos \alpha$ and $\tan \theta = \tan \alpha$</p>
II-Algebra	<p>1. Principle of Mathematical induction (Delete Complete section)</p> <p>2. Complex Numbers and Quadratic Equations: Argand plane and polar representation of complex numbers, Square root of a complex number.</p> <p>4. Permutations and Combinations: Derivation of formulae for nPr & nC_r</p> <p>5. Binomial Theorem (Delete Complete section)</p> <p>6. Sequence and Series: Sum to n terms of special series : Σn, Σn^2, Σn^3</p>
III-Coordinate Geometry	<p>1. Straight Lines: Shifting of origin. Equation of family of lines passing through the point of intersection of two lines.</p> <p>2. Conic Sections: A point, a straight line and a pair of intersecting line as a degenerated case of a conic section</p>
IV-Calculus	NIL
V-Mathematical reasoning	Delete full Chapter
VI-Statistics and Probability	<p>1. Statistics: Analysis of frequency distributions with equal means but different variances.</p> <p>2. Probability: Axiomatic (Set theoretic) probability, connections with the theories of earlier classes.</p>

MATHEMATICS
Revised COURSE STRUCTURE
CLASS 11 (Theory)

One Paper

Time : 3 hours

Max Marks : 80

Units	Titles	Weightage
I	Sets and functions	24 Marks
II	Algebra	26 Marks
III	Coordinate geometry	12 Marks
IV	Calculus	08 Marks
V	Statistic and Probability	10 Marks
TOTAL		80 Marks

UNIT I: SETS AND FUNCTIONS

24 Marks

1. Sets

Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of the set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and intersection of sets.

2. Relations and Functions

Ordered pairs, Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the reals with itself (upto $R \times R$).

Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another. Pictorial representation of a function, domain, codomain and range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions with their graphs.

3. Trigonometric Functions

Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x . Signs of trigonometric functions and sketch of their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of $\sin x$, $\sin y$, $\cos x$ and $\cos y$. Deducing the identities like following:

$$\tan(x \mp y) = \frac{\tan x \mp \tan y}{1 \mp \tan x \tan y} \quad (x \mp y) = \frac{\cot y \mp \cot x}{1 \mp \cot x \cot y}, \cot$$

$$\begin{aligned} \cos x + \cos y &= 2 \cos \frac{x+y}{2} \cos \frac{x-y}{2}, \quad \cos x - \cos y = -2 \sin \frac{x+y}{2} \sin \frac{x-y}{2} \\ \sin x + \sin y &= 2 \sin \frac{x+y}{2} \cos \frac{x-y}{2}, \quad \sin x - \sin y = 2 \cos \frac{x+y}{2} \sin \frac{x-y}{2} \end{aligned}$$

Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$. Proofs and simple applications of sine and cosine formulae.

UNIT II: ALGEBRA

26 Marks

1. Complex Numbers and Quadratic Equations

Need for complex numbers, especially $\sqrt{-1}$ to be motivated by inability to solve every quadratic equation. Brief description of algebraic properties of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system.

2. Linear Inequalities

Linear inequalities, Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Solution of system of linear inequalities in two variables-graphically.

3. Permutations and Combinations

Fundamental principle of counting. Factorial n . Permutations and combinations : their connections, simple applications.

4. Sequence and Series

Sequence and Series. Arithmetic Progression(A.P.), Arithmetic Mean(A.M.), Geometric Progression(G.P.), general term of a G.P., sum of n terms of a G.P. Arithmetic and geometric series, infinite G.P. and its sum, geometric mean(G.M.). Relation between A.M. and G.M.

UNIT III: COORDINATE GEOMETRY

12 Marks

1. Straight Lines

Brief recall of 2-D from earlier classes, Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axes, point-slope form, slope-intercept form, two-point form, intercepts form and normal form. General equation of a line. Distance of a point from a line.

2. Conic Sections

Sections of a cone: Circles, ellipse, parabola, hyperbola. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.

3. Introduction to Three-dimensional Geometry

Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.

UNIT IV : CALCULUS

08 Marks

Limits and Derivatives

Derivative introduced as rate of change both as that of distance function and geometrically, Intuitive idea of limit. $\lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a}$, $\lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a}$
 $\rightarrow 0 \rightarrow 0$

Definition of derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.

UNIT VI : STATISTICS AND PROBABILITY

10 Marks

1. Statistics

Measure of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data.

2. Probability

Random experiments: outcomes, sample spaces (set representation). Events: Occurrence of events, 'not', 'and' & 'or' events, exhaustive events, mutually exclusive events. Probability of an event, probability of 'not', 'and', & 'or' events.

Sample Blue Print : Mathematics - 11

Forms of Question/ Topic	Knowledge				Understanding				Application				HOTS				Evaluation				Total
	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	
Sets, Relations and Functions	1(1)			5(1)	1(1)								2(1)								10(4)
Trigonometric functions	1(1)			5(1)	1(1)		4(1)						2(1)								14(5)
Complex Number, quadratic and Linear Inequations	1(1)		4(1)		2(2)										4(1)						11(5)
Permutation, Combination, Binomial Theorem and Sequences & Series							4(1)		1(1)			6(1)							4(1)		15(4)
Coordinate geometry	1(1)							6(1)	1(1)										4(1)		12(4)
Calculus	2(2)				1(1)				1(1)			4(1)									8(5)
Statistics and Probability		2(1)			1(1)		4(1)		1(1)	2(1)											10(5)
Sub- Total	6(6)	2(1)	4(1)	12(2)	6(6)		12(3)	6(1)	4(4)	2(1)	4(1)	6(1)		4(2)	4(1)				8(2)		80(32)
Total		24(10)				24(10)				16(7)				8(3)				8(2)			

Note : 1) The figures in the bracket denotes the number of questions.

2) This is only a sample Blue Print. The question setter may develop his/her own Blue Print as per the question design.

Subject: Physics**Class: 11**

Units	Topic/ Portion Deleted
Unit II: Kinematics	Frame of reference(Inertia and non-inertia frames), Motion in a straight line – Position-time graph
Unit III: Laws of Motion	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. (Recapitulation only).
Unit V: Motion of System of Particles and Rigid Body	Statement of parallel and perpendicular axes theorem and their applications.
Unit VI: Gravitation	Kepler's laws of planetary motion. Acceleration due to gravity.
Unit VII: Properties of Bulk Matter	Elastic behaviour, shear modulus of rigidity, poisson's ratio; elastic energy. Newton's law of cooling.
Unit-VIII Thermodynamics	Heat engines and refrigerators
Unit X: Oscillations and Waves	Fundamental mode and harmonics, Doppler Effect

Section A**Activities**

1. To make a paper scale of given least count, e.g. 0.2 cm, 0.5 cm.
2. To determine mass of a given body using a metre scale by principle of moments.
3. To plot a graph for a given set of data, with proper choice scales and error bars.
4. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
5. To study the variation in the range of a jet of water with the angle of projection.
6. To study the conservation of energy of a ball rolling down on inclined plane (using a double inclined plane).
7. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

Section B**Activities**

1. To observe change of state and plot a cooling curve for molten wax.
2. To observe and explain the effect of heating on a bi-metallic strip.
3. To note the change in level of Liquid in a container on heating and interpret the observations.
4. To study the effect of detergent on surface tension of water by observing capillary rise.
5. To study the factors affecting the rate of loss of heat of a liquid.

6. To study-the effect of load on depression of a suitably clamped meter scale loaded at (i) at its end (ii) in the middle.

Revised PHYSICS

The syllabus for Physics at the Higher Secondary Stage has been developed with a view that this stage of school education is crucial and challenging as it is a transition from general science to discipline-based curriculum. The recommendations of National Curriculum Framework-2005 have been followed, keeping the disciplinary approach with rigour and depth, appropriate to the comprehension level of learners. Due care has been taken that the syllabus is not heavy and at the same time it is comparable to the international standards. The -syllabus provides logical sequencing of the subject matter with proper placement of concepts with their linkages for better understanding.

It is expected that the syllabus will help to develop an interest in the learners to study Physics as a discipline and inculcate in learners the abilities, useful concepts of Physics in real-life situations for making learning of Physics relevant, meaningful and interesting. The learner is expected to realize and appreciate - the interface of Physics with other disciplines.

RATIONALE

The higher secondary stage is crucial and challenging stage of school education as it is a transition from general science to discipline-based curriculum. Physics is being offered as an elective subject at the higher secondary stage of school education. At this stage, the students take up Physics, as a discipline, with a purpose of pursuing their future careers in basic sciences or professional courses like medicine, engineering, technology and studying courses in applied areas of science and technology at tertiary level. There is a need to provide the learners with sufficient conceptual background of Physics which would eventually make them competent to meet the challenges of academic and professional courses after the higher secondary stage.

The present effort of reforming and updating the Physics curriculum is an exercise based on the feedback received from the school system about existing syllabus and curricular material, large expansion of Physics knowledge, and also the educational and curricular concerns and issues provided in the National Curriculum Framework-2005.

The recommendations of National Curriculum Framework-2005 have been followed, keeping the disciplinary approach with rigour and depth, appropriate to the -comprehension level of learners. Due care has been taken that the syllabus is not heavy and at the same time, it is comparable to the international standards. Also, it is essential to develop linkages with other disciplines for better learning of Physics concepts and establishing relationship with daily-life situations and life-skills.

SALIENT FEATURES

- Emphasis on basic conceptual understanding of content.
- Promoting process-skills, problem-solving abilities and applications of Physics concepts/content, useful in real-life situations for making Physics learning more relevant, meaningful and interesting.

- Emphasis on use of SI Units, Symbols, nomenclature of physical quantities and formulations as per international standards.
- Emphasis on Physics-related technological/industrial aspects to cope up with changing demand of society committed to the use of Physics, technology and informatics.
- Providing logical sequencing of the 'Units' of the subject matter and proper placement of concepts with their linkages for better learning and matching the concepts/content with comprehension level of the learners.
- Reducing the curriculum load by eliminating overlapping of concepts/content within the discipline of Physics or with other disciplines; reducing the descriptive portion and providing suitable formulation/depth of treatment appropriate to the comprehension level of learners, making room for contemporary core - topics and emerging curricular areas in Physics.
- The syllabus is arranged in Units spread over two year's duration. The Unit is so sequenced as to provide different dimensions of Physics as a discipline. The time allocation for learning Physics content per Unit in terms of instructional periods have been mentioned for each Unit to help the Textbook Development Team members to develop the instructional material so as to cover it within the time frame. Each Unit has been arranged with a topic, content related practical work (one core experiment, two activities to be evaluated) and suggested investigatory projects (one project to be evaluated). There is an imperative need for evaluating the learners through Continuous and Comprehensive Evaluation of various concepts covered in a Unit.

With this background, the Physics curriculum at the higher secondary stage attempts to:

- Strengthen the concepts developed at the secondary stage to provide firm ground work and foundation for further learning Physics at the tertiary level more effectively and learning the relationship with daily-life situations;
- Develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines;
- Expose the learners to different processes used in Physics-related industrial and technological applications;
- Develop process-skills and experimental, observational, manipulative, decision-making and investigatory skills in the learners;
- Promote problem-solving abilities and creative thinking to develop interest in the learners in the study of Physics as a discipline;
- Understand the relationship between nature and matter on scientific basis, develop positive scientific attitude, and appreciate the contribution of Physics towards the improvement of quality of life and human welfare;
- Physics teaching-learning at the higher secondary stage enables the learners to comprehend the contemporary knowledge and develop aesthetic sensibilities and process skills, The experimental skills and process-skills developed together with conceptual Physics knowledge prepare the learners for more meaningful learning experiences and contribute to the significant improvement of quality of life. The learners would also appreciate the role and impact of Physics and technology, and their linkages with overall national development.

COURSE STRUCTURE

Class 11 (Theory)

One Paper

Time 3 Hours

Max. Marks: 70

Units	Titles	Weightage	
I	Physical World & Measurement	04	
II	Kinematics	09	
III	Laws of Motion	06	IV
	Work, Energy & Power		09
V	Motion of System of particles & Rigid Body	06	
VI	Gravitation	08	
VII	Properties of Bulk Matter	11	VIII
	Thermodynamics		04
IX	Behaviour of Perfect Gas & Kinetic Theory of Gases	04	
X	Oscillations & Waves	09	
Total		70	

Unit I: Physical World and Measurement

Physics: Scope and excitement; nature of physical laws; Physics, technology and society.

Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.

Dimensions of physical quantities, dimensional analysis and its applications.

Unit II: Kinematics:

Elementary-concepts of differentiation and integration for describing motion: Motion in a straight line: speed and velocity. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity-time and position-time graphs, relations for uniformly accelerated motion (graphical treatment).

Scalar and vector quantities: Position and displacement vectors, general vectors and notation, equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity.

Unit vectors. Resolution of a vector in a plane -rectangular components.

Scalar and Vector products of Vectors. Motion in a plane. Cases of uniform velocity and uniform acceleration-projectile motion. Uniform circular motion.

Unit III: Laws of Motion

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. (Recapitulation only).

Law of conservation of linear momentum and its applications.

Equilibrium of concurrent forces. Static and kinetic friction, laws of friction, rolling friction, lubrication.

Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on level circular road, vehicle on banked road).

Unit IV: Work, Energy and Power

Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power.

Notion of potential energy, potential energy of a spring, conservative forces; conservation of mechanical energy (kinetic and potential energies); non-conservative forces; motion in a vertical circle, elastic and inelastic collisions in one and two dimensions.

Unit V: Motion of System of Particles and Rigid Body

Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of uniform rod.

Moment of a force, torque, angular momentum, conservation of angular momentum with some examples.

Equilibrium of rigid bodies, rigid body rotation and equation of rotational motion, comparison of linear and rotational motions; moment of inertia, radius of gyration. Values of M.I. for simple geometrical objects(no derivation).

Unit VI: Gravitation

The universal law of gravitation. Acceleration due to gravity (recapitulation) and its variation with altitude and depth.

Gravitational potential energy; gravitational potential. Escape velocity, orbital velocity of a satellite. Geostationary satellites.

Unit VII: Properties of Bulk Matter

Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus.

Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes) . Effect of gravity on fluid pressure.

Viscosity, Stokes' law, terminal velocity, Reynolds's number, streamline and turbulent flow. Critical velocity, Bernoulli's theorem and its applications.

Surface energy and surface tension, angle of contact, excess of pressure, application of surface tension ideas to drops, bubbles and capillary rise.

Heat, temperature (recapitulation only), thermal expansion; thermal expansion of solids, liquids, and gases. Anomalous expansion. Specific heat capacity: C_p , C_v — calorimetry; change of state — latent heat capacity.

Heat transfer-conduction and thermal conductivity, convection and radiation (recapitulation only). Qualitative ideas of Black Body Radiation, Wein's displacement law, Stefan's law and Green House effect.

Unit VIII :Thermodynamics

Thermal equilibrium-and definition of temperature (Zeroth law of Thermodynamics). Heat, work and internal energy. First law of thermodynamics. Isothermal and adiabatic processes.

Second law of thermodynamics: Reversible and irreversible processes.

Unit IX: Behaviour of Perfect Gas and Kinetic Theory

Equation of state of a perfect gas; work done on compressing a gas.

Kinetic theory of gases: Assumptions, concept of pressure. Kinetic energy and temperature; rms speed of gas molecules; degrees of freedom, law of equipartition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.

Unit X: Oscillations and Waves

Periodic motion — period, frequency, displacement as a function of time. Periodic functions.

Simple harmonic motion(SHM) and its equation; phase; oscillations of a spring - restoring force and force constant; energy in SHM — kinetic and potential energies; simple pendulum - derivation of expression for its time period; free, forced and damped oscillations (qualitative ideas only), resonance.

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, beats.

Sample Blue Print : Physics - 11

Forms of Question/ Topic	Knowledge				Understanding				Application				HOTS				Total
	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	
Physical World & Measurement	1(1)										3(1)						4(2)
Kinematics	1(1)							5(1)	1(1)				2(1)				9(4)
Laws of Motion			3(1)		1(1)				2(1)								6(3)
Work, Energy and Power	1(1)							5(1)			3(1)						9(3)
Motion of System of Particles & Rigid Body			3(1)			2(1)			1(1)								6(3)
Gravitation	1(1)						3(1)		1(1)					3(1)			8(4)
Properties of Bulk Matter			3(1)			2(1)						5(1)	1(1)				11(4)
Thermodynamics		2(1)							2(2)								4(3)
Behaviour of Perfect Gas & Kinetic Theory of Gases	2(2)	2(1)															4(3)
Oscillations & Waves		2(1)					3(1)				3(1)		1(1)				9(4)
Sub - total	5(6)	6(3)	9(3)		1(1)	4(2)	6(2)	10(2)	5(5)	2(1)	9(3)	5(1)	2(2)	2(1)	3(1)		70(33)
Total		21(12)			21(7)				21(10)				7(4)				

Note : 1) The figures in the bracket denotes the number of questions.

2) This is only a sample Blue Print. The question setter may develop his/her own Blue Print as per the question design.

PRACTICALS

Class 11

Every student will perform at least 8 experiments (from any section).

Section A

Experiments.

1. To measure diameter of a small spherical/cylindrical body using Vernier callipers.
2. To measure internal diameter and depth of a given beaker/calorimeter using Vernier callipers and hence find its volume.
3. To measure diameter of a given wire using screw gauge.
4. To measure thickness of a given sheet using screw gauge.
5. To measure volume of an irregular lamina using screw gauge.
6. To determine radius of curvature of a given spherical surface by a spherometer.
7. To determine the mass of two different objects using a beam balance, 8. To find the weight of a given body using parallelogram law of vectors.
9. Using a simple pendulum, plot L-T and L-T² graphs. Hence find the effective length of a second's pendulum using appropriate graph.
10. To study the relationship between force of limiting friction and normal reaction and to find the coefficient of friction between a block and a horizontal surface.
11. To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination (θ) by plotting graph between force and $\sin \theta$.

Section B

Experiments

1. To determine Young's modulus of elasticity of the material of a given wire.
2. To find the-force constant of a helical spring by plotting a graph between load and extension.
3. To study-the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and 1/V.
4. To determine the surface tension of water by capillary rise method.
5. To determine the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of a given spherical body.
6. To study the relationship between the temperature of a hot body and time by plotting a cooling curve. .
7. To determine specific heat capacity of a given (i) solid (ii) liquid, by method of mixtures.
8. (i) To study the relation between frequency and length of a given wire under constant tension using sonometer. .
(ii) To study the relation between the length of a given wire and tension for constant frequency using sonometer.
9. To find the speed of sound in air at room temperature using a resonance tube by two resonance positions.

Subject : Chemistry

Class : 11

Unit	Topic / Portion deleted for 2020-2021 academic session
I	Some Basic Concepts of Chemistry Historical approach to particulate nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules.
II	Structure of Atom Discovery of electron, proton and neutron; atomic number, isotopes and isobars. Thomson's model and its limitations, Rutherford's model and its limitations
III	Classification of Elements and Periodicity in Properties Significance of classification, brief history of the development of periodic table.
V	States of Matter: Gases 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	Thermodynamics Heat capacity and specific heat, criteria for equilibrium.
VII	Equilibrium Hydrolysis of salts (elementary idea), Henderson equation.
VIII	Redox Reactions Applications of redox reactions.
IX	Hydrogen Preparation, properties and uses of hydrogen; hydrogen peroxide-preparation, reactions, use and structure.
X	Block Elements (Alkali and Alkaline earth metals) <i>Group 1 and Group 2 elements:—</i> Preparation and Properties of Some Important Compounds: Sodium carbonate, sodium chloride, sodium hydroxide and sodium hydrogencarbonate, biological importance of sodium and potassium. CaO, CaCO ₃ , and industrial use of lime and limestone, biological importance of Mg and Ca
XI	Some <i>p</i> -Block Elements — Some important compounds: borax, boric acids, boron hydrides. Aluminium: uses, reactions with acids and alkalies. Uses of some important compounds: oxides. Important compounds of silicon and a few uses: silicon tetrachloride, silicones, silicates and zeolites, their uses.
XII	Organic Chemistry -Some Basic Principles and Techniques Methods of purification, qualitative and quantitative analysis.

XIII	Hydrocarbons Classification of Hydrocarbons. - Aliphatic Hydrocarbons: <i>Alkanes</i> — including free radical mechanism of halogenation, combustion and pyrolysis.
------	--

XIV	Environmental Chemistry <i>Environmental pollution</i> —Air, water and soil pollution, chemical reactions in atmosphere, smogs, major atmospheric pollutants; acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming— pollution due to industrial wastes; green chemistry as an alternative tool for reducing pollution, strategy for control of environmental pollution.
-----	---

Weightage to content area of selected portion :

Unit	Topic / Portion Selected for 2020-2021 academic session	Mark
I	Some Basic Concepts of Chemistry <i>General Introduction</i> : Importance and scope of chemistry. Atomic and molecular masses. Mole concept and molar mass; percentage composition-and empirical and molecular formula; chemical reactions, stoichiometry and calculations based on stoichiometry	05
II	Structure of Atom Bohr's model and its limitations, concept of shells and sub-shells, dual-nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of <i>s</i> , <i>p</i> and <i>d</i> orbitals; rules for filling electrons in orbitals -Aufbau principle, Pauli exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.	06
III	Classification of Elements and Periodicity in Properties Modern periodic law and the present form of periodic table, periodic trends in properties of elements —atomic radii, ionic radii, inert gas radii, ionization enthalpy, electron gain enthalpy, electronegativity, valence. Nomenclature of elements with atomic number greater than 100.	04
IV	Chemical Bonding and Molecular Structure Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization involving <i>s</i> , <i>p</i> and <i>d</i> orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only). Hydrogen bond.	05

V	<p>States of Matter: Gases</p> <p>Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charle's law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation. Deviation from ideal behaviour.</p> <p>Liquid State — Vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations).</p>	04
---	---	----

10.

VI	<p>Thermodynamics</p> <p>Concepts of system, types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions.</p> <p>First law of thermodynamics — internal energy and enthalpy, measurement of ΔU and ΔH, Hess's law of constant heat summation, enthalpy of: bond dissociation, combustion, formation, atomization, sublimation; phase transition; ionization, solution and dilution.</p> <p>Introduction of entropy as a state function, Second law of thermodynamics, Gibbs energy change for spontaneous and non-spontaneous process.</p> <p>Third law of thermodynamics - Brief introduction.</p>	06
VII	<p>Equilibrium</p> <p>Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium — Le Chatelier's principle; ionic equilibrium—ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of polybasic acids, acid strength, concept of pH, buffer solutions, solubility product, common ion effect (with- illustrative examples).</p>	06
VIII	<p>Redox Reactions</p> <p>Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions in terms of loss and gain of electron and change in oxidation numbers.</p>	03
IX	<p>Hydrogen</p> <p>Position of hydrogen in periodic table, occurrence, isotopes; hydrides — ionic, covalent and interstitial; physical and chemical properties of water, heavy water; hydrogen as a fuel.</p>	03
X	<p>Block Elements (Alkali and Alkaline earth metals) <i>Group 1 and Group 2 elements:</i></p> <p>General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens; uses.</p>	05

XI	<p>Some <i>p</i>-Block Elements</p> <p>General Introduction to <i>p</i>-Block Elements</p> <p><i>Group 13 elements</i>: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group; Boron-physical and chemical properties.</p> <p><i>Group 14 elements</i>: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first element. Carbon - catenation, allotropic forms, physical and chemical properties.</p>	05
----	---	----

11.

XII	<p>Organic Chemistry -Some Basic Principles and Techniques</p> <p>General introduction, classification and IUPAC nomenclature of organic compounds.</p> <p>Electronic displacements in a covalent bond-. inductive effect, electromeric effect, resonance and hyper conjugation.</p> <p>Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions; electrophiles and nucleophiles, types of organic reactions.</p>	07
XIII	<p>Hydrocarbons</p> <p>Classification of Hydrocarbons. - Aliphatic</p> <p>Hydrocarbons:</p> <p><i>Alkanes</i> — Nomenclature, isomerism, conformations (ethane only), physical properties, chemical reactions.</p> <p><i>Alkenes</i> —Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation; chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.</p> <p><i>Alkynes</i> —Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.</p> <p>Aromatic hydrocarbons: Introduction, IUPAC nomenclature; Benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution— nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation; directive influence of functional group in mono substituted benzene; carcinogenicity and toxicity.</p>	11
Total		70

Weightage to form of questions :

Sl No.	Type of questions	No. of questions	Mark for each question	Total
1	Objective type	14	1	14
2	Short Answer I	11	2	22
3	Short Answer II	08	3	24
4	Long Answer	02	5	20
	Total	35		70

Sample Blue Print : Chemistry XI

Units	Forms of Question/ Topic	Knowledge			Understanding			Application			HOTS			Total
		Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	
I	Some Basic concept of Chemistry						2(1)							5(2)
II	Structure of Atom	2(2)								1(1)				6(4)
III	Classification of elements		2(1)				2(1)							4(2)
IV	Chemical Bonding												5(1)	5(1)
V	States of Matter	1(1)					2(1)			1(1)				4(3)
VI	Thermodynamics	1(1)												6(2)
VII	Equilibrium	1(1)					2(1)			1(1)	2(1)			6(4)
VIII	Redox reaction													3(1)
IX	Hydrogen							3(1)						3(1)
X	S-Block Elements	2(2)										3(1)		5(3)
XI	Some p-block elements									2(2)				5(3)
XII	Organic Chemistry : Some Principles	2(2)	2(1)	3(1)										7(4)
XIII	Hydrocarbons		2(1)	3(1)			4(2)				2(1)			11(5)
Sub Total		9(9)	6(3)	6(2)			12(6)	9(3)		3(3)	4(2)	9(3)	5(1)	70(35)
Total		21(14)			21(9)			21(9)			7(3)			

Note : 1) The figures in the bracket denotes the number of questions

2) This is only a sample Blue Print. The question setter may develop his/her own Blue Print as per the question design

Unit	Topic / Portion deleted for 2020-2021 academic session
I	<p>Diversity of Living Organisms</p> <p>Chapter 1 : The Living World</p> <p>1.2 Taxonomy, Systematics</p> <p>1.6 Taxonomy Aids (Herbarium, Botanical gardens, Museum and Zoological Parks)</p> <p>1.7 Key – A tool for identification of Plants & Animals</p> <p>Chapter 3 : Plant Kingdom</p> <p>3.9 Angiosperms – The Flowering Plants (Evolutionary changes that led to their success, variations in angiosperms)</p>
II	<p>Structural Organisation in Animals and Plants</p> <p>Chapter 5 : Morphology of Flowering Plants</p> <p>5.2 The Root System, (Types, functions & Modifications)</p> <p>5.3 The Stem (Characteristic features, functions, modifications)</p> <p>5.4 Leaf (Structure, Venation, simple & Compound leaves, phyllotaxy modification & functions)</p> <p>5.7 Fruit 5.8 Seed Disruption of Families – Fabaceae</p> <p>Chapter 6 : Anatomy of Flowering Plants</p> <p>6.3 Permanent Tissues 6.4 The Tissue System</p> <p>6.8 Secondary Growth</p> <p>Chapter 7 : Structural Organisation in Animals</p> <p>Morphology and Anatomy of Animals (Earthworm, Cockroach, Frog)</p>
IV	<p>Plant Physiology</p> <p>Transport in Plants</p> <p>11.1 Means of Transport</p> <p>11.4 Water Movement up a Plant through xylem</p> <p>11.5 Transpiration (3. Stomata and Transpiration – Role of Stomata in transpiration, Structure of Stomata, Mechanism of stomata Action)</p> <p>11.6 Uptake and transport of Mineral Nutrients</p> <p>11.7 Translocation of Mineral Ions 11.8 Phloem Transport</p> <p>11.9 The Pressure Flow or Mass Flow Hypothesis</p>

	human eye and ear)
--	--------------------

Weightage to content area of selected portion :

Unit	Topic / Portion Selected for 2020-2021 academic session	Mark												
I	<p>Diversity in Living World</p> <p>Chapter 1 : The Living World</p> <p>1.1 What is Living?</p> <p>1.2 Diversity in the Living World (History of Classification, Important terms – Nomenclature, Identification, classifications, Binomial Nomenclature)</p> <p>1.3 Types of Classification</p> <p>1.4 Hierarchy of Categories</p> <p>1.5 Taxonomic Categories</p> <p>Chapter 2 : Biological Classification (Whole Chapter)</p> <p>Chapter 3 : Plant Kingdom</p> <table><tr><td>3.1 Evolution and Classification</td><td>3.2 Algae</td></tr><tr><td>3.3. Chlorophyceae</td><td>3.4 Phaeophyceae</td></tr><tr><td>3.5 Phodophyceae</td><td>3.6 Bryophytes</td></tr><tr><td>3.7 Pteridophytes</td><td>3.8 Gymnosperms</td></tr><tr><td>3.9 Angesperms (3. Economic Importance</td><td>4. Structure of a flower and formation of seeds</td></tr><tr><td colspan="2">5. Classification)</td></tr></table> <p>3.10 Plant life cycle and Alternation of generation</p>	3.1 Evolution and Classification	3.2 Algae	3.3. Chlorophyceae	3.4 Phaeophyceae	3.5 Phodophyceae	3.6 Bryophytes	3.7 Pteridophytes	3.8 Gymnosperms	3.9 Angesperms (3. Economic Importance	4. Structure of a flower and formation of seeds	5. Classification)		07
3.1 Evolution and Classification	3.2 Algae													
3.3. Chlorophyceae	3.4 Phaeophyceae													
3.5 Phodophyceae	3.6 Bryophytes													
3.7 Pteridophytes	3.8 Gymnosperms													
3.9 Angesperms (3. Economic Importance	4. Structure of a flower and formation of seeds													
5. Classification)														

Chapter 4 : Animal Kingdom (Whole Chapter)
Structural Organisation in Plants and Animals

II	<p>Chapter 5 : Morphology of Flowering Plants</p> <p>5.1 Plant Morphology</p> <p>5.5. Inflorescence</p> <p>5.6 Flower</p> <p>5.9 Semi-technical description of typical flowering plants.</p> <p>Selected Families of Dicotyledons (Family solanaceas, Family Liliaceae)</p>	10
----	--	----

Chapter 6 : Anatomy of Flowering Plants

- 6.1 The Tissues
- 6.2 Meristematic Tissues or Meristems
- 6.5 Anatomy of Root
- 6.6 Anatomy of Stem
- 6.7 Anatomy of Leaf

Chapter 7 : Structural Organisation in Animals

- A. Animal Tissues (7.1 Epithelial Tissues
- 7.2 Connective Tissue 7.3 Muscular Tissue
- 7.4 Nervous Tissue)

Cell : Structure and Functions

Chapter 8 Cell : The Unit of Life (Whole Chapter)

Chapter 9 : Biomolecules (Whole Chapter)

Chapter 10 : Cell Cycle and Cell Division (Whole Chapter)

Plant Physiology

Chapter 11 : Transport in Plants

- 11.2 Plant Water relations
- 11.3 Transport of Water
- 11.5 Transpiration
- (1. Sites of transpiration 2. Factors effecting transpiration)

Chapter 12 : Mineral nutrition

- 12.1 Need for mineral Nutrition
- 12.4 Criteria of Essentiality of Elements
- 12.8 Mechanism of Absorption of Elements
- 12.9 Translocation of solutes
- 12.10 Sources of essential Elements for Plants

Chapter 13 : Photosynthesis (Whole Chapter)

Chapter 14 : Respiration in Plants (Whole Chapter)

Chapter 15 : Plant Growth and Development
15.1 Growth
15.4 Plant Growth Regulator or Phytohormones
15.5 Discovery and Physiological Effects of Regulators

	15.6 Interaction of Growth Hormones	
V	<p>Human Physiology</p> <p>Chapter 16 : Digestion and Absorption 16.2 Digestion of Food</p> <p>Chapter 17 : Breathing and Exchange of Gases (Whole Chapter)</p> <p>Chapter 18 : Body Fluids and Circulation (Whole Chapter)</p> <p>Chapter 19 : Excretory Products and their Elimination (Whole Chapter)</p> <p>Chapter 20 : Locomotion and Movement 20.2 Locomotion in Humans 20.3 Muscular System in Humans</p> <p>Chapter 21 : Neural Control and Coordination 21.1 Neural (Nervous) System 21.2 Human Neural System 21.3 Neuron as Structural & Functional Unit of Neural System 21.4 Generation and Conduction of Nerve Impulse 21.5 Transmission of Impulses 21.6 Central Nervous System (CNS) 21.7 Peripheral Nervous System (PNS) 21.9 Sensory Reception and Processing (2. Mechanism of vision of Human Eye., Mechanism of hearing of human ear)</p> <p>Chapter 22 : Chemical Coordination and Integration (Whole chapter)</p>	18

Weightage to form of questions :

Sl No.	Type of questions	No. of questions	Mark for each question	Total
1	Objective type	14	1	14
2	Short Answer I	07	2	14
3	Short Answer II	09	3	27
4	Long Answer	03	5	15
	Total	33		70

Sample Blue Print : Biology XI

Forms of Question/ Topic	Knowledge				Understanding				Application				HOTS				Evaluation				Total
	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	Obj	SA I	SA II	LA	
Diversity in living world	1(1)	2(1)					3(1)		1(1)												7(4)
Structural Organisation in animals and plants	1(1)		3(1)		1(1)	2(1)		3(1)													10(5)
Cell : Structure and Functions	1(1)			5(1)	2(2)		3(1)		1(1)				3(1)				2(1)				17(8)
Plant Physiology	1(1)		3(1)		1(1)	2(1)		5(1)				3(1)		1(1)	2(1)						18(8)
Animal Physiology	1(1)		3(1)			2(1)			1(1)	2(1)	3(1)			1(1)						5(1)	18(8)
Sub - total	5(5)	2(1)	9(3)	5(1)	4(4)	6(3)	6(2)	5(1)	3(3)	2(1)	9(3)		29(2)	2(1)	3(1)		2(1)			5(1)	70(33)
Total	21(10)				21(10)				14(7)				7(4)				7(2)				

Note : 1) The figures in the bracket denotes the number of questions

2) This is only a sample Blue Print. The question setter may develop his/her own Blue Print as per the question design

DELETED PORTIONS CLASS XI: PRACTICAL

A: List of Experiments

1. Description of Family Fabaceae; Types of root (Tap and adventitious); types of stem (Herbaceous and woody); leaf(arrangement, shape, venation, simple and compound)
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary)
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g.Rhoeo/lily leaves or flashy scale leaves of onion bulb).
5. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
6. Test for the presence of sugar, starch, proteins and ats in suitable plant and nimal materials.
7. Test for presence of urea in urine.
8. Test for presence of bile salts in urine.

B. Study/Observe of the following (spotting)

1. Tissues and diversity in shape and size of plant cells (palisade cells, guard cells, parenchyma, collenchyma, xylem and phloem) through temporary and permanent slides)
2. Different modifications in roots, stems and leaves.
3. Different types of inflorescence (cymose and racemose)
4. Human skeleton and different types of joints with the help of virtual images/model only

Weightage to content area of selected portion :

Unit	Topic / Portion Selected for 2020-2021 academic session
I	Study of distribution of stomata in the upper and lower surface of leaves.
II	<p>A. a) To detect the presence of sugar in wine / hood sample. To b) detect the presence of albumin in wine.</p> <p>B. a) Study and describe three locally available common following plants from Family solanaceae and Liliaceae) including dissection and display of floral whorls and other and ovary to show number of chambers.</p>
III	<p>A. Study / Observation / Experimental set – up a) Study parts of a compound microscope b) Study of imbibition in seeds/raisins c) Study of external morphology of cockroach through models d) Observation and comments on the experimental set up for showing (i) Anaerobic respiration (ii) Phototropism (iii) Apical bud removal (iv) Suction due to transpiration</p> <p>B. Temporary (Permanent Slides) a) Amoeba b) Hydra c) Study of mitosis in onion root tip cell and animal cells (grasshopper) from permanent slides</p> <p>C. Museum specimens of a) Study of the specimens and identification with reasons – Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, moss plant, fern, pine cone, one monocotyledonous plant and one dicotyledonous plant and one lichen. b) Study of specimens and identification with reasons. Liver fluke, Ascoms, leech, earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.</p>

IV	Viva Voce (based on experiments performed)
----	--