



BLUEPRINT

Subject: Science

Class: X

Unit/Paper: Board Examination

Max Marks: 80

Time: 3 Hours

Objective	Awareness												Sensitivity												Creativity																		Total Row Wise			
Form of Questions	Knowledge				Understanding of the construct				Understanding of the process				Conflict Resolution				Open Mindedness				Collaboration				Generate Innovative Ideas				Flexibility				Fluency				Exploration				Combining Idea & Concepts					
Content Unit/ Sub Unit	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O	LA	SA	VSA	O						
1				1x1(1)		1x3(10)						1x1(2)			1x2(8)																												7			
2				1x1(3)					1x5(13)																																		6			
3				1x1(4)																								1x3(11)				1x2(9)											6			
4				1x1(5)				1x1(6)				1x1(7)		1x3(12)																													6			
5			1x2(19)	1x1(14)			1x2(20)								1x2(16)		1x3(23)																										10			
6				1x1(15)			1x2(21)														1x2(17)																						5			
7					1x5(26)																																						5			
8							1x2(22)									1x3(24)																											5			
9											1x3(34)												1x5(36)																					8		
10				2x2(27, 28)																																	1x2(33)						4			
11			1x2(32)	3x3(29, 30, 31)																																			1x5(37)					10		
12																											1x3(35)																	3		
13																			1x2(18)		1x3(25)																							5		
Sub Total	-	-	4	11	5	3	6	1	5	3	-	2	-	3	2	2	0	6	0	2	-	3	-	2	5	-	-	-	-	3	-	-	-	-	3	-	-	-	-	4	-	5	-	-	-	80
Total Column Wise	15				15				10				7				8				5				5				3				3				4				5				80	
Total	40												20												20																					

Note 1: How to read entries in the cell; Example: 1 x 5 (36) it means 1 question of 5 marks presented at position of number of 36 in the paper.

Note 2: Figures within brackets to indicate the sequence number of question in the paper.

Note 3: The questions marked with * are two marks Objective Type Questions.



Summary Sheet for Science

S. No.	Abilities	Standard for Basic & Proficient Level	Question Number	No. of items
1	Awareness	50%	1,2,3,4,5,6,7,10,13,14,15,19, 20,21,22,26,27,28,29,30,31,32,34	23
2	Sensitivity	25%	8,12,16,17,18,23,24,25	8
3	Creativity	25%	9,11,33,35,36,37	6

Nature of Questions	Standard for Basic, Proficient & Advance	No. of Items	Marks
Long Answer (LA)	25%	4	20
Short Answer (SA)	30%	8	24
Very Short Answer (VSA)	20%	8	16
Objective (O)	25%	17	20

S. No.	Difficult Level	Standard for Basic & Proficient Level	Question Number	No. of items
1	Easy	25%	1,3,4,5,6,8,10,14, 15, 19, 27, 28, 29, 30, 31, 32	16
2	Medium	50%	2,7, 9, 11, 13, 16, 17, 18, 20, 21, 22, 23, 33, 34, 35, 37	16
3	Difficult	25%	12, 24, 25, 26, 36	5

Competencies Covered: Science

S. No.	Competency Code	Competency Details	Question Number	No. of items
1	C-1.1	Describes classification of elements in the Periodic Table, and explains how compounds (including carbon compounds) are formed based on atomic structure (Bohr's model) and properties (valency)	5,6,7,12	4



S. No.	Competency Code	Competency Details	Question Number	No. of items
2	C-1.2	Investigates the nature and properties of chemical substances (distillation, crystallisation, chromatography, centrifugation, types and properties of mixtures, solutions, colloids, and suspensions)		
3	C-1.3	Describes and represents chemical interactions and changes using symbols and chemical equations (acid and base, metal, and non-metal, reversible, and irreversible)	1,2,3,4,8,9,10,11,13	9
4	C-2.1	Applies Newton's laws to explain the effect of forces (change in state of motion: displacement and direction, velocity and acceleration, uniform circular motion, acceleration due to gravity) and analyses graphical and mathematical representations of motion in one dimension		
5	C-2.2	Explains the relationship between mass and weight using universal law of gravitation and connect it to laws of motion		
6	C-2.3	Manipulates the position of object and properties of lenses (focus, centre of curvature) to observe image characteristics and correspondence with a ray diagram, and extends this understanding to a combination of lenses (telescope, microscope)	27,28,33,34,36	5
7	C-2.4	Manipulates and analyses different characteristics of the circuit (current, voltage, resistance) and mathematises their relationship (Ohm's law), and applies it to everyday usage (electricity bill, short circuit, safety measures)	29,30,31,32,35,37	6
8	C-2.5	Defines work in scientific terms, and represents the relationship between potential and kinetic energy (conservation of energy) in mathematical expressions		
9	C-2.6	Demonstrates the principle of mechanical advantage by constructing simple machines (system of levers and pulleys)		
10	C-2.7	Describes the origin and properties of sound (wavelength, frequency, amplitude) and differences in what we hear as it propagates through different instruments		
11	C-3.1	Explains the role of cellular components (nucleus, mitochondria, endoplasmic reticulum, vacuoles, chloroplast, cell wall), including the semi-permeability of cell membrane in making cell the structural basis of living organisms and functional basis of life processes	14,16,19,20,23	5
12	C-3.2	Analyses similarities and differences in the life processes involved in nutrition (photosynthesis in plants; absorption of nutrients in fungi; digestion in animals), transport (transport of water in plants; circulation in animals), exchange of materials (respiration and excretion), and reproduction	15,17,18, 21	4
13	C-3.3	Describes mechanisms of heredity (in terms of DNA, genes, chromosomes) and variation (as changes in the sequence of DNA)	22,26	2
14	C-4.1	Applies the knowledge of cellular diversity in organisms along with the ecological role organisms play (autotrophic or heterotrophic nutrition) to classify them into five-kingdoms		



S. No.	Competency Code	Competency Details	Question Number	No. of items
15	C-4.2	Illustrates different levels of organisations of living organisms (from molecules to organisms)		
16	C-4.3	Analyses different levels of biological organisation from organisms to ecosystems and biomes along with interactions that take place at each level		
17	C-4.4	Analyses patterns of inheritance of traits in terms of Mendel's laws and its consequences at a population level (using models and/or simulations)		
18	C-4.5	Analyses evidences of biological evolution demonstrating the consequences of the process of natural selection in terms of changes: in allele frequency in population, structure, and function of organisms	24	1
19	C-5.1	Explores how literature and the arts have influenced Science		
20	C-5.2	Examines a case study related to the use of Science in human life from the perspective of Social Sciences and ethics (e.g., Marie Curie, Jenner, treatment of patients with mental illness, the story of the atomic bomb, green revolution and GMOs, conservation of biodiversity)		
21	C-5.3	Applies scientific principles to explain phenomena in other subjects (sound pitch, octave, and amplitude in music; use of muscles in dance form and sports)		
22	C-6.1	Knows and explains the significant contributions of India to all matters (concepts, explanations, methods) that are studied within the curriculum in an integrated manner		
23	C-7.1	States concepts that represent the most current understanding of the matter being studied, ranging from mere familiarity to conceptual understanding of the matter as appropriate to the developmental stage of the students		
24	C-7.2	States questions related to matters in the curriculum for which current scientific understanding is well recognised to be inadequate		
25	C-8.1	Develops accurate and appropriate models (including geometric, mathematical, graphical) to represent real-life events and phenomena using scientific principles and use these models to manipulate variables and predict results		
26	C-8.2	Designs and implements a plan for scientific inquiry (formulates hypotheses, makes predictions, identifies variables, accurately uses scientific instruments, represents data, primary and secondary, in multiple modes, draws inferences based on data and understanding of scientific concepts, theories, laws, and principles, communicates findings using scientific terminology)	25	1

Chapter:



- 1. Chemical Reactions and Equations**
- 2. Acids, Bases and Salts**
- 3. Metals and Non-metals**
- 4. Carbon and its Compounds**
- 5. Life Processes**
- 6. Control and Coordination**
- 7. How do Organisms Reproduce?**
- 8. Heredity**
- 9. Light – Reflection and Refraction**
- 10. The Human Eye and the Colourful World**
- 11. Electricity**
- 12. Magnetic Effects of Electric Current**
- 13. Our Environment**