

ANSWER KEY AND MARKING SCHEME SERIES:

SUBJECT: SCIENCE

SEPTEMBER 2025

GRADE: 9

SUBJECT CODE:

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(ACCEPT ANY OTHER VALID ANSWERS FOR ALL THE QUESTIONS)

Q. No.	ANSWERS SET A	SET B	SET C	SET D	Text Book PAGE NO. Edition <u>2024</u>	Ch. No.	MARKS	TOTAL MARK
1	(A) Condensation	B	D	A	1.4.2 pg 8	1	1	1
2	(C) White cotton	D	B	(A)	1.5.2 pg 10	1	1	1
3	(B) Liquid	B	B	(B)	1.4 pg 7	1	1	1
4	(C) Lysosomes	B	B	A	5.2.5 pg 60	5	1	1
5	(A) Smooth Muscle	D	A	C	Fig6.11pg72	6	1	1
6	(B) Sclerenchyma	D	A	B	6.2.2 pg 67	6	1	1
7	(D) ms^{-2}	B	(A)	C	8.3 pg 98	8	1	1
8	(B) Speed	B	(B)	A	8.6 pg 105	8	1	1
9	(B) Nucleoid	B	A	B	5.2.3 pg 58	5	1	1
10	(D) 373 K	A	C	D	1.4 pg 7	8	1	1
11	(D) mv	A	B	B	9.4 pg 113	9	1	1
12	(B) Y has more inertia than X	(A)	C	B	9.3 pg 112	9	1	1
13	(B) Acceleration	(B)	A	D	10.2.2pg129	10	1	1
14	(B) 30 ms^{-2}	A	B	D	9.4 pg113	9	1	1
15	(A) Sieve tubes	C	D	B	6.2.2 pg 68	6	1	1
16	(A) Decreased	B	B	B	10.2 pg129	10	1	1
17	(A) Both A and R are true and R is the correct explanation of A	C	B	B	10.1 pg126	10	1	1
18	(B) Both A and R are true but reason is not the correct explanation of A	A	D	A	8.2 pg 96	9	1	1
19	Diagram Labelling				Fig 1.7 pg8	1	$\frac{1}{2} + \frac{1}{2}$	2
20	i) $u = 20 \text{ ms}^{-1}$, $v = 60 \text{ ms}^{-1}$, $t = 8 \text{ s}$ $a = \frac{v - u}{t}$ $= \frac{60 \text{ ms}^{-1} - 20 \text{ ms}^{-1}}{8 \text{ s}}$ $= \frac{40 \text{ ms}^{-1}}{8 \text{ s}} = 5 \text{ ms}^{-2}$ ii) distance				8.5 pg 102	8	$\frac{1}{2}$ $\frac{1}{2}$	2

	$s = ut + \frac{1}{2} at^2$ $s = (20\text{ms}^{-1})(8\text{ s}) + \frac{1}{2} (5\text{ms}^{-2})(8\text{ s})(8\text{ s})$ $s = 160\text{ m} + 160\text{ m} = 320\text{ m}$ OR $v^2 = u^2 + 2as$ $(60)^2 = (20)^2 + 2 \times 5 \times s$ $3600 = 400 + 10 \times s$ $\frac{3600-400}{10} = s$ $320\text{ m} = s$						$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	
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Q. No.	ANSWERS	Text Book PAGE NO. Edition 2024	Ch. No.	MARKS	TOTAL MARKS
21	Drawing Correct Labelling	Fig 5.5 pg 59	5	$\frac{1}{2} + \frac{1}{2}$	2
22	i) Distance covered – Total distance travelled by an object/ scalar quantity Displacement – The shortest distance from the initial to the final position of the object/ vector quantity ii) Velocity – The speed of an object moving in a definite direction/ ms Acceleration – The rate of change of velocity/ ms^{-2}	8.1 pg94 8.2.1/8.3 Pg96/97	8	1 1	2
23	i) No, a plant cell would not burst in a very dilute solution because as the cell swells, it builds up pressure against the cell wall and the cell wall exerts an equal and opposite pressure against the cell membrane. So the cell wall prevents it from bursting. ii) During plasmolysis, a living plant cell loses water through osmosis and there is shrinkage of the contents of the cell away from the cell wall. OR i) If a cell does not have ribosomes, it will not be able to manufacture proteins. ii) The smooth Endoplasmic reticulum in the liver cells of vertebrates plays a crucial role in detoxifying drugs and poisons./ proteins and lipids help in cell function.	5.2.2 pg57 Note: No.(1/2) . cell swells but does not burst because wall exerts equal pressure against swollen cell.(1/2) OR Due to rigid outer covering of	5	1 1 1	2

		the cell wall.(1/2)			
		5.2.5 pg 57			
24	i) The particles of gas have very weak intermolecular forces of attraction causing them to move randomly and spread out to occupy the whole vessel./ intermolecular forces between gas molecules are very weak. ii) A steel cupboard is a solid because it has a definite shape and volume. It is rigid and resists any change in shape. Hence it is called a solid.(Any two points)	1.3 pg 4/5	1	1 1	2
25	i) 70 m ii) 30 m	8.1.1 pg 94	8	1 1	2
26	i)Blood is considered a connective tissue as it is made up of matrix and cells like other connective tissues. Blood also connects various tissues and organs by transporting substances throughout the body. ii) Proteins and sugars	6.3.2 pg 71	6	1 $\frac{1}{2} + \frac{1}{2}$	2
27	Inertia is the tendency of an object to remain at rest or continue moving. The first law of Newton's describes the tendency of an object to resist change of state. Any relevant example to be accepted	9.2 pg 110	9	1 + 1	2

Q. No.	ANSWERS	Text Book PAGE NO. Edition 2024	Ch. No.	MARKS	TOTAL MARKS
28	i)Evaporation causes cooling. So when water is sprinkled on roof tops, the water absorbs the heat from the roof top and causes cooling. ii)Higher the humidity, lower is the rate of evaporation OR i)The intermolecular forces of attraction in ice is much stronger than that of water so the interspaces between particles in solids is less than that of liquids. i)A sponge has minute holes in which air is trapped. So when we press it, the air gets expelled.	1.5 pg 9 1.3 pg 4	1	1 + 1 1 + 1	2
29	Prokaryotes i) Absence of well	Eukaryotes i) Well defined	5.2.3 pg59	5	1 + 1 2

	defined nuclear region ii) Single chromosome	surrounded by nuclear membrane ii) More than one chromosome				
30	i) As the gun is fired, it exerts a force on the bullet. The bullet in turn exerts an equal and opposite force on the gun as per Newtons 3 rd law of motion./ This phenomenon is also related to the conservation of momentum, where the momentum gained by the bullet is balanced by the momentum lost by the gun. ii) As the sailor jumps out in the forwards direction out of the boat, he exerts an equal and opposite force on the boat as per Newtons 3 rd law of motion.		9.5 pg116	9	1 1	2
31	<u>Life would become chaotic as people would not be able to perform day today activity (1)</u> <u>Walking</u> – We would continuously slip and fall(1/2) <u>Holding objects</u> – Holding objects would be difficult as they would fall out of our hands.(1/2) OR The poster should explain the danger involved in standing in a moving bus. Any other relevant, correct and context specific answer that addresses the question should also be expected./ drawing can be accepted.		9.1 pg 109 9.2 pg110	9	2	2
32	i) The density of wood is less than the density of water so the buoyant force acting on the wooden piece is greater than the gravitational force making it float./ wood displaces more water than its weight. (this point can be considered.) ii)It is used to explain (Any 2) - the force that binds us to the earth - the motion of the moon around the earth - the motion of the planets around the sun - the tides due to the moon and the sun		10.5.3 pg 134 10.1.2 pg128	10	1 1 ½ + ½	2

Q. No.	ANSWERS	Text Book PAGE NO. Edition 2024	Ch. No.	MARKS	TOTAL MARKS
33	i) An object is said to be in free fall when it is falling under the influence of gravitational force alone. ii) a) On Earth = 882 N b)On the moon = 147N $W_E = m \times g$ $= 90 \times 9.8 \quad (1/2)$ $= 882 \text{ N} \quad (1/2)$ OR i) More the area lesser is the pressure exerted.	10.2 pg 128 10.5 pg132	10	1 1 1 1	3

	School bags have broad straps to distribute the weight of the bag more evenly across the shoulders, making it more comfortable to carry. ii) Density of object = $\frac{M}{V} = \frac{600g}{350 \text{ cm}^3} = 1.71g\text{cm}^{-3}$ Since the density of the object is more than density of water, it will sink	10.7 pg 136		1	
34	i) Plants in dry regions have a thick epidermis to minimize water loss by transpiration. ii) Lateral meristem increase the plant's girth or thickness iii) Lignin helps thicken the walls of the sclerenchymatous tissue to provide structural strength and rigidity/ protection OR i) Most animal tissues are living because animals need are active, mobile, and perform complex functions. Plant tissues are dead because they primarily provide support and structure, requiring less energy for maintenance. ii) To prevent wear and tear iii) Lining of kidney tubules and ducts of salivary glands (Any other correct answer)	6.2.2 pg 68 6.2.1 pg 65 6.1 pg 64 6.3.1 pg 70 6.3.1 pg 70	6	1 1 1 1 1	3
35	i) Correct diagram (if attempted give 1 mk) Correct Labelling ($\frac{1}{2} + \frac{1}{2}$) ii) Chromoplasts and Leucoplasts	5.2.5 pg 59 5.2.5 pg 61	5	1 $\frac{1}{2} + \frac{1}{2}$ 1	3
36	i) Mass depends only on the amount of substance present while weight depends on amount of substance and the acceleration due to gravity acting on the object. Mass remains the same everywhere while weight changes from place to place (Accept any one point) ii) $\text{Nm}^2\text{kg}^{-2}$ iii) Lactometer and hydrometer	10.3/10.4 pg131 10.1.1 pg128 10.6 pg 136	10	1 1 1	3

Q. No.	ANSWERS	Text Book PAGE NO. Edition 2024	Ch. No.	MARKS	TOTAL MARKS
37	i) Voluntary muscles are called skeletal muscles because they are directly attached to the bones of the skeleton and cause their movement. ii) Correct diagram Correct Labelling iii) They are cylindrical, branched and uninucleate	6.3.3 pg 72 6.3.4 pg 73	6	1 1 $\frac{1}{2} + \frac{1}{2}$	4

