B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

TERM 1 EXAMINATION 2026-27
SCIENCE
SET-I

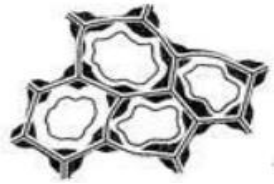
Class: IX **Time: 3 hours**
Date: 11.09.26 **Max Marks: 80**
Admission no: **Roll no:**

General Instructions:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.

(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

	Section-A BIOLOGY	
1	Plasmolysis in a plant cell is defined as (a) break down (lysis) of plasma membrane in hypotonic medium (b) shrinkage of cytoplasm in hypertonic medium (c) shrinkage of nucleoplasm (d) none of them	1
2	Find out the correct sentence (a) Enzymes packed in Lysosomes are made through RER (rough endoplasmic reticulum) (b) Rough endoplasmic reticulum and smooth endoplasmic reticulum produce lipid and protein respectively (c) Endoplasmic reticulum is related with the destruction of plasma membrane (d) Nucleoid is present inside the nucleoplasm of eukaryotic nucleus	1
3	Amoeba acquires its food through a process, termed (a) exocytosis (b) endocytosis (c) plasmolysis (d) exocytosis and endocytosis both	1
4	Intestine absorb the digested food materials. What type of epithelial cells are responsible for that? (a) Stratified squamous epithelium (b) Columnar epithelium (c) Spindle fibres (d) Cuboidal epithelium	1
5	Find out incorrect sentence (a) Parenchymatous tissues have intercellular spaces (b) Collenchymatous tissues are irregularly thickened at corners (c) Apical and intercalary meristems are permanent tissues (d) Meristematic tissues, in its early stage, lack vacuoles	1
6	In desert plants, rate of water loss gets reduced due to the presence of (a) cuticle (b) stomata (c) lignin (d) suberin	1

7	Girth of stem increases due to (a) apical meristem (b) lateral meristem (c) intercalary meristem (d) vertical meristem	1
The following two questions consist of two statements – **Assertion** (A) and **Reason** (R). Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true.		
8	Assertion (A): Bone is a connective tissue which is very hard and rigid. Reason (R): The matrix consists of calcium and phosphate.	1
9	Assertion (A): Water hyacinth can float on the water surface. Reason (R): Aerenchyma tissue is present in water hyacinth.	1
10	Name the different components of the fluid connective tissue. Write two functions of the same.	2
11	What are cork tissues? How are they formed?	2
12	What is a neuron? Draw the structure and write functions of a neuron.	2
13	Why are the xylem and phloem called complex tissue? How are they different from one another?	3
14	With the help of labelled diagram differentiate between striated muscles, unstriated muscles and cardiac muscles?	3
15	Attempt either subpart A or B. Observe the given figure and answer the following questions-  i) Identify the tissue given above. ii) Mention the characteristic features of these cells. iii) Specify the function of this tissue. iv) Name any part of the plant where these cells are present. OR iv) Branches of a tree move and bend freely in high wind velocity. Give reason.	4
16	Attempt either option A or B. A. Draw a plant cell and label the parts which (a) determines the function and development of the cell (b) packages materials coming from the endoplasmic reticulum (c) provides resistance to microbes to withstand hypotonic external media without bursting (d) is site for many biochemical reactions necessary to sustain life. (e) is a fluid contained inside the nucleus OR	5

	B. In brief state what happens when (a) dry apricots are left for sometime in pure water and later transferred to sugar solution? (b) a Red Blood Cell is kept in concentrated saline solution? (c) the Plasma-membrane of a cell breaks down? (d) rheo leaves are boiled in water first and then a drop of sugar syrup is put on it? (e) golgi apparatus is removed from the cell?	
	Section-B Chemistry	
17	Which of the following is not a matter? (a) Chair (b) Air (c) Love (d) Almond	1
18	The process of a solid changing directly into a gas is called: (a) Evaporation (b) Sublimation (c) Condensation (d) Diffusion	1
19	Which of the following is NOT a state of matter? (a) Solid (b) Liquid (c) Gas (d) Light	1
20	The property of a substance to be drawn into wire is called: (a) Ductility (b) Malleability (c) Solubility (d) Viscosity	1
21	Which of the following is a homogeneous mixture? (a) Orange juice with pulp (b) Sand and water (c) Saltwater (d) Oil and vinegar	1
22	Which of the following elements exists in a liquid state at room temperature? (a) Sodium (b) Mercury (c) Copper (d) Sulphur	1
23	Which of the following is not a mixture? (a) Brass (b) Distilled water (c) Ink (d) Soil	1

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24	**Assertion** (A): Oxygen is an element. **Reason** (R): It cannot be decomposed into simpler substances by physical or chemical processes.	1
25	Convert the following temperatures to the Kelvin scale. a) 57 ^{0}C b) 165 ^{0}C	2
26	*Attempt either option A or B.* **(A)** (i) What are the two components of the solution? (ii) Write any two properties of the solution. **OR** **(B)** (i) Define concentration of a solution. (ii) Explain the Tyndall effect. (iii) What are saturated solution?	3
27	What is evaporation? Explain the factors that affect the rate of evaporation in detail.	3
28	**Read the passage given below and answer the questions that follow:** In a chemistry lab, students are observing dry ice (solid carbon dioxide). One student notices that it directly changes into a gaseous state without becoming liquid. The teacher explains this process and compares it with camphor burning, which also seems to disappear without leaving any liquid behind. This led to a discussion on conditions under which substances change their state.	4

	 (i) What is the name of the process by which dry ice changes directly into a gas? (1) (ii) What condition of pressure is usually required for sublimation? (1) (iii) How can knowledge of sublimation be applied in daily life or industries? (2) **OR** (iii) Name two more substances (other than dry ice and camphor) that undergoes the same type of change	
29	*Attempt either option A or B.* (A) (i) Differentiate between mixtures and compounds. (ii) Classify the following as chemical or physical changes: a) Tearing of paper b) Melting of ice c) Rusting of almirah d) Dissolving salt in water e) Digestion of food f) Burning of candle **OR** **(B)** (i) A solution contains 80 g of sugar in 640 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.	5

	(ii) Explain the physical properties of metals.	
Section-C Physics		
30	A batsman hits a cricket ball which then rolls on a level ground. After covering a short distance on the ground, the ball comes to rest. The force responsible for bringing the ball to rest is: (a) the force applied by the batsman (b) the weight of the ball (c) the frictional force exerted by the ground (d) no force is responsible for stopping the ball	1
31	The value of acceleration due to gravity (g): (a) is the same at the equator and the poles (b) is maximum at the poles and minimum at the equator (c) is maximum at the equator and minimum at the poles (d) increases continuously as we move from the pole to the equator	1
The following question consists of two statements – **Assertion** (A) and **Reason** (R). Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true.		
32	Assertion (A): The weight of an object on the Moon is less than its weight on the Earth. Reason (R): The mass of the Moon is less than the mass of the Earth, and hence the gravitational pull exerted by the Moon on the object is smaller than that exerted by the Earth.	1
33	Distinguish between uniform acceleration and non-uniform acceleration, giving one everyday example of each. OR A bus decreases its speed from 80 km/h to 60 km/h in 5 s. Find the acceleration of the bus.	2
34	State the universal law of gravitation and write the mathematical expression for the gravitational force between two objects, stating what each symbol represents.	2
35	Using a velocity-time graph, derive the equation of motion $v = u + at$, where the symbols have their usual meanings.	3
36	An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle and road if the vehicle is to be stopped with a negative acceleration of 1.7 ms^{-2} ?	3
37	The mass of the Earth is 6×10^{24}kg and that of the Moon is 7.4×10^{22} kg. If the distance between the Earth and the Moon is 3.84×10^5 km, calculate the force exerted by the Earth on the Moon. (Take G = 6.7×10^{-11} N m^2 kg^{-2})	3
38	Read the passage given below and answer the questions that follow:	4

	A rocket burns fuel. Hot gas rushes down out of the bottom of the rocket engine. This gas pushes down with a huge force. At the same time, the gas pushes the rocket up with an equal force (i) Which direction does the action force point? (1) (ii) Write the name of the law applicable in the above examples. (1) (iii) Why does the rocket move upward if the forces are equal and opposite (2) —OR— (iii) If the mass of the rocket is very large, how does its acceleration compare to the gas? (2)	
39	A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming the acceleration to be uniform, find: (a) the acceleration, and (b) the distance travelled by the train for attaining this velocity. OR (a) Derive the equation of motion $s = ut + \frac{1}{2}at^2$ by the graphical method, where the symbols have their usual meanings. (b) A car travelling at 20 m/s applies brakes and comes to rest after covering a distance of 40 m. Find the acceleration produced by the brakes.	5

**********ALL THE BEST**********