



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-II

Class: IX

Date: 11.09.26

Admission no:

General Instructions:

Time: 3 hours

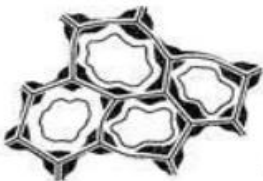
Max Marks: 80

Roll no:

(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	If the volume of a cell increases when it is placed in a solution, that solution is said to be _____ to the cell. A. Hypertonic B. Subatomic C. Isotonic D. Hypotonic	1
2	Girth of stem increases due to (a) apical meristem (b) lateral meristem (c) intercalary meristem (d) vertical meristem	1
3	In desert plants, rate of water loss gets reduced due to the presence of (a) cuticle (b) stomata (c) lignin (d) suberin	1
4	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
5	Amoeba acquires its food through a process, termed (a) exocytosis (b) endocytosis (c) plasmolysis (d) exocytosis and endocytosis both	1
6	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
7	Intestine absorb the digested food materials. What type of epithelial cells are responsible for that?	1

	(a) Stratified squamous epithelium (c) Spindle fibres	(b) Columnar epithelium (d) Cuboidal epithelium	
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): Cell wall is not found in animal cell. Reason(R): Animal cells are covered by cell membrane.		1
9	Assertion (A): Plant tissues are mostly dead. Reason (R): Dead tissues can provide mechanical strength and need less maintenance.		1
10	a) What do you understand by the term membrane biogenesis? b) Mention any one point of difference between mitosis and meiosis.		2
11	What is a neuron? Draw the structure and write functions of a neuron.		2
12	What are cork tissues? How are they formed?		2
13	A. Why do plant cells possess large sized vacuole? B. What would happen if the plasma membrane ruptures or breaks down? C. Name the cell organelle performing the following functions. i) Powerhouse of the cell. ii) Suicidal bags of the cell.		3
14	a) What is meant by differentiation? b) What are stomata? What are the functions of the stomata?		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		5

	(d) is site for many biochemical reactions necessary to sustain life. (e) is a fluid contained inside the nucleus OR 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	The property of a substance to be beaten into sheet is called: (a) Ductility (b) Malleability (c) Solubility (d) Viscosity	1
18	Which of the following is a homogeneous mixture? (a) Orange juice with pulp (b) Sand and water (c) Saltwater (d) Oil and vinegar	1
19	Which of the following elements exists in a liquid state at room temperature? (a) Sodium (b) Mercury (c) Copper (d) Sulphur	1
20	Which of the following is not a mixture? (a) Brass (b) Distilled water (c) Ink (d) Soil	1
21	Which of the following is not a matter? (a) Chair (b) Air (c) Love (d) Almond	1
22	The process of a solid changing directly into a gas is called: (a) Evaporation (b) Sublimation (c) Condensation (d) Diffusion	1
23	Which of the following is NOT a state of matter? (a) Solid (b) Liquid	1

	(c) Gas (d) Light	
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.		
24	Assertion : A solution of table salt in a glass of water is homogeneous. Reason : A solution having different composition throughout is homogeneous.	1
25	Convert the following temperatures to the Celsius scale. a) 357 K b) 405 K	2
26	What is evaporation? Explain the factors that affect the rate of evaporation in detail.	3
27	<i>Attempt either option A or B.</i> (A) (i) What are the two components of colloid? (ii) Write any two properties of the colloid. OR (B) (i) Define homogeneous mixture. (ii) Explain the Tyndall effect. (iii) What are unsaturated solution?	3
28	Ranjan hung his wet clothes on a windy day. He noticed that the clothes dried faster than usual. His sister asked why the clothes dried more quickly. Ranjan recalled his science lesson, which mentioned that the rate of evaporation depends on several factors such as temperature, surface area, wind speed, and humidity. He also observed that when he rubbed alcohol on his hand, it felt cool.	4



- (i) Why did Ranjan's clothes dry faster on a windy day? (1)
- (ii) Give one reason why evaporation of sweat is essential for the human body. (1)
- (iii) If the humidity is high, how will it affect the rate of evaporation? (2)

OR

- (iii) How does evaporation cause cooling, as observed in the alcohol example?

29 Attempt either option A or B.

5

(A) (i) Differentiate between mixtures and compounds.

(ii) Classify the following as chemical or physical changes:

- a) Cutting of wood
- b) Melting of butter in a pan
- c) Rusting of iron nail
- d) Dissolving sugar in water
- e) Digestion of food
- f) Burning of paper

OR

(B) (i) A solution contains 20 g of sugar in 160 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.

(ii) Explain the physical properties of metals.

Section-C Physics		
30	Which one of the following is not a contact force? (a) Frictional force (b) Normal force exerted by a surface (c) Gravitational force of the Earth on the Moon (d) Muscular force used to push a door	1
31	The gravitational force of attraction between two objects is F. If the mass of each object is doubled, keeping the distance between them the same, the new force of attraction will be: (a) F/4 (b) F/2 (c) 2F (d) 4 F	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): A flat sheet of paper falls to the ground more slowly than the same sheet crumpled into a ball. Reason (R): The flat sheet has a larger surface area, so air resistance opposes its downward motion more strongly than it opposes the crumpled ball.	1
33	What is meant by uniform velocity? Give one example of a body moving with uniform velocity. OR An artificial satellite is moving in a circular orbit of radius 42250 km around the Earth. If it takes 24 hours to complete one revolution, calculate its speed.	2
34	What is meant by free fall? Give a reason why all objects, irrespective of their mass, fall towards the Earth with the same acceleration when air resistance is neglected.	2
35	Using a velocity-time graph, derive the equation of motion $v^2 = u^2 + 2as$, where the symbols have their usual meanings.	3
36	A stone of 1 kg is thrown with a velocity of 20 m/s across the frozen surface of a lake and comes to rest after travelling a distance of 50 m. What is the force of friction between the stone and the ice?	3
37	Calculate the value of acceleration due to gravity (g) on the surface of the Earth, given that the mass of the Earth is 6×10^{24} kg, the radius of the Earth is 6.4×10^6 m, and $G = 6.7 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$.	3
38	Read the passage given below and answer the questions that follow: A swimmer pushes the water backward with their hands. The water pushes the swimmer forward. This allows the swimmer to move across the pool. (i) Identify the reaction force. (1) (ii) Identify the action force in this case. (1) (iii) State Newton's third law of motion. (2) OR (iii) Do these two forces cancel each other out to make net force zero? Why? (2)	
39	A car starting from rest acquires a velocity of 54 km/h in 2 minutes. Assuming the acceleration to be uniform, find:	5

	(a) the acceleration of the car, and (b) the distance travelled by the car in attaining this velocity. OR (a) Draw a distance-time graph for a body moving with uniform speed. What does the slope of this graph represent? (b) A stone is dropped from the top of a cliff and reaches the ground after 4 s. Taking $g = 10 \text{ m/s}^2$, find (i) the height of the cliff, and (ii) the velocity with which the stone strikes the ground.	
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*****ALL THE BEST*****