CLASS IX — SCIENCE SAMPLE PAPER (2026-27 SESSION)

Time: 3 Hours **Maximum Marks: 80**

General Instructions

1. This question paper contains 39 questions. All questions are compulsory. Internal choice is given in some questions.
2. The paper has five sections: Section A, B, C, D and E.
3. Section A has 20 questions of 1 mark each (Q1–Q18 are multiple-choice questions and Q19–Q20 are Assertion–Reason questions).
4. Section B has 6 very short answer questions of 2 marks each. Answer each in about 30–50 words.
5. Section C has 7 short answer questions of 3 marks each. Answer each in about 50–80 words.
6. Section D has 3 long answer questions of 5 marks each. Answer each in about 100–120 words.
7. Section E has 3 source-based / case-based questions of 4 marks each.
8. Draw neat diagrams wherever required. Show all steps in numerical problems and write the unit with the final answer. Use g = 10 m/s² unless stated otherwise.

SECTION A

Q1–Q20 carry 1 mark each

Q1. Which of the following is present in a prokaryotic cell? **[1]**

(a) Nucleolus

(b) Mitochondria

(c) Endoplasmic reticulum

(d) Ribosomes

Q2. When a plant cell is placed in a hypertonic solution, its protoplasm shrinks away from the cell wall. This process is called **[1]**

(a) plasmolysis

(b) turgor

(c) osmosis

(d) diffusion

Q3. The tissue that conducts food from the leaves to other parts of a plant is **[1]**

(a) xylem

(b) phloem

(c) sclerenchyma

(d) collenchyma

Q4. Which of the following statements about cardiac muscle is correct? **[1]**

(a) It is voluntary and unbranched.

(b) It is involuntary and unstriated.

(c) It is involuntary, striated and branched.

(d) It is voluntary and multinucleate.

Q5. Which of the following organisms reproduces by budding? **[1]**

(a) Hydra

(b) Amoeba

(c) Plasmodium

(d) Spirogyra

Q6. After fertilisation in a flower, the ovary develops into the **[1]**

(a) seed

(b) stigma

(c) petal

(d) fruit

Q7. Organisms that have a cell wall made of chitin and obtain food by absorbing it from dead organic matter belong to the kingdom **[1]**

(a) Plantae

(b) Monera

(c) Fungi

(d) Protista

Q8. Ferns are classified under **[1]**

(a) Bryophyta

(b) Pteridophyta

(c) Gymnosperms

(d) Angiosperms

Q9. Which of the following is a colloid? **[1]**

(a) Milk

(b) Sugar solution

(c) Muddy water

(d) Salt solution

Q10. The most suitable method to separate a mixture of two miscible liquids whose boiling points differ by more than 25 K is **[1]**

(a) filtration

(b) sublimation

(c) simple distillation

(d) use of a separating funnel

Q11. An atom has atomic number 17 and mass number 35. The number of neutrons in its nucleus is **[1]**

(a) 17

(b) 35

(c) 52

(d) 18

Q12. Isotopes of an element have the same **[1]**

(a) mass number

(b) atomic number

(c) number of neutrons

(d) number of nucleons

Q13. In water, hydrogen and oxygen are always present in the mass ratio 1 : 8, whatever the source of water. This illustrates the law of **[1]**

(a) conservation of mass

(b) multiple proportions

(c) constant proportions

(d) reciprocal proportions

Q14. The slope of a distance–time graph gives the **[1]**

(a) speed

(b) acceleration

(c) displacement

(d) momentum

Q15. A passenger standing in a bus lurches forward when the bus stops suddenly. This is explained by **[1]**

(a) Newton's second law

(b) Newton's third law

(c) the law of conservation of energy

(d) Newton's first law (law of inertia)

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Q16. If the velocity of a moving body is doubled, its kinetic energy becomes **[1]**

(a) twice
(b) four times
(c) half
(d) unchanged

Q17. Sound cannot travel through **[1]**

(a) steel
(b) water
(c) a vacuum
(d) air

Q18. The conversion of atmospheric nitrogen into nitrates and other usable forms by bacteria such as Rhizobium is called **[1]**

(a) nitrogen fixation
(b) denitrification
(c) nitrification
(d) decomposition

Q19. Given below are two statements labelled Assertion (A) and Reason (R). Select the correct option. **[1]**

Assertion (A): When a magnesium ribbon is burnt in a closed vessel, the total mass of the vessel and its contents remains the same before and after burning.

Reason (R): Atoms are neither created nor destroyed in a chemical reaction.

(a) Both A and R are true, and R is the correct explanation of A.
(b) Both A and R are true, but R is not the correct explanation of A.
(c) A is true, but R is false.
(d) A is false, but R is true.

Q20. Given below are two statements labelled Assertion (A) and Reason (R). Select the correct option. **[1]**

Assertion (A): Ice-covered regions of Earth reflect most of the sunlight that falls on them.

Reason (R): Ice has a very low albedo.

(a) Both A and R are true, and R is the correct explanation of A.
(b) Both A and R are true, but R is not the correct explanation of A.
(c) A is true, but R is false.
(d) A is false, but R is true.

SECTION B

Q21–Q26 carry 2 marks each

Q21. An element X has atomic number 12. **[2]**

(a) Write its electronic configuration.

(b) State its valency and give a reason.

Q22. A sound wave has a frequency of 500 Hz and a wavelength of 0.68 m. Calculate the speed of the wave. **[2]**

Q23. Distinguish between loudness and pitch of a sound. Name the characteristic of the sound wave on which each depends. **[2]**

OR

A girl claps near a cliff and hears the echo after 3 s. If the speed of sound in air is 340 m/s, find the distance of the cliff from her.

Q24. Write any two differences between xylem and phloem. **[2]**

Q25. Name two methods of vegetative propagation and give one example of a plant propagated by each method. **[2]**

OR

Differentiate between pollination and fertilisation in flowering plants.

Q26. A body of mass 2 kg is placed on a shelf 10 m above the ground. Calculate its potential energy. If it falls freely, what will be its kinetic energy just before it reaches the ground? **[2]**

SECTION C

Q27–Q33 carry 3 marks each

Q27. Answer the following about meristematic tissues. **[3]**

(a) What is meristematic tissue? [1]

(b) State the location and the function of apical meristem and lateral meristem. [2]

Q28. Describe the events that take place after a pollen grain lands on the stigma of a flower, leading up to fertilisation. **[3]**

OR

Draw a neat, labelled diagram of the longitudinal section of a flower, showing the parts involved in fertilisation. Label any four parts.

Q29. A solution is prepared by dissolving 15 g of sugar in 135 g of water. **[3]**

(a) Calculate the mass by mass percentage of the solution. [2]

(b) How much sugar will be present in 300 g of this solution? [1]

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Q30.(a) Write the chemical formulae of aluminium oxide and calcium chloride. (b) Calculate the molecular mass of aluminium oxide. (Atomic masses: Al = 27 u, O = 16 u) **[3]**

Q31. State the law of conservation of mass. On heating 10 g of calcium carbonate, 5.6 g of calcium oxide and 4.4 g of carbon dioxide are obtained. Show that this data verifies the law. **[3]**

Q32. A ball of mass 0.5 kg is dropped from a height of 20 m. Calculate (a) its potential energy at the top, (b) its kinetic energy just before it hits the ground, and (c) its speed at that instant. (Take g = 10 m/s².) **[3]**

OR

A machine does 3000 J of work in 1 minute. (a) Calculate its power. (b) How long will a 200 W bulb take to use the same amount of energy?

Q33. Name two greenhouse gases. Explain how they keep Earth warm, and state one human activity that increases their amount in the atmosphere. **[3]**

SECTION D

Q34–Q36 carry 5 marks each

Q34. Equal numbers of dry raisins are placed for two hours in plain water (beaker A) and in a concentrated sugar solution (beaker B). **[5]**

(a) Predict what will happen to the raisins in each beaker. [2]

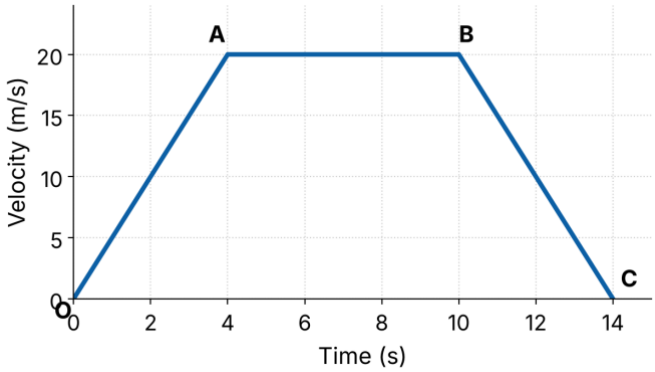
(b) Name the process responsible and explain it with reference to the direction in which water moves. [2]

(c) What would happen if the raisins from beaker A were now transferred to beaker B? [1]

OR

Draw a neat, labelled diagram of a plant cell showing at least four parts. Write the function of any two of the parts you have labelled. (Diagram: 3 marks; functions: 2 marks)

Q35. The velocity–time graph of a car moving along a straight road is shown below. **[5]**



(a) Find the acceleration of the car between 0 s and 4 s. [1]

(b) Find the retardation of the car between 10 s and 14 s. [1]

(c) Calculate the total distance travelled by the car in 14 s. [2]

(d) Calculate the average speed of the car for the whole journey. [1]

OR

A car moving at 54 km/h is brought to rest by applying brakes, which produce a uniform retardation of 3 m/s². (a) Convert the initial speed into m/s. (b) Find the time taken to stop. (c) Find the distance covered before the car stops.

Q36. A bullet of mass 20 g is fired horizontally from a gun of mass 4 kg with a speed of 400 m/s. **[5]**

(a) State the law of conservation of momentum. [1]

(b) Calculate the recoil velocity of the gun. [2]

(c) Explain why the recoil velocity of the gun is much smaller than the velocity of the bullet. [1]

(d) Which of Newton's laws of motion explains the recoil of the gun? [1]

OR

A constant force of 20 N acts on a body of mass 5 kg, initially at rest, for 6 s. Calculate (a) the acceleration produced, (b) the velocity after 6 s, (c) the momentum after 6 s, and (d) the distance travelled in 6 s.

SECTION E

Q37–Q39 are case-based / source-based questions carrying 4 marks each

Q37. A student collected four organisms from a pond and its surroundings and recorded these observations. **[4]**

Organism	Observation
P	Single-celled, has a well-defined nucleus, lives in pond water and moves with the help of cilia.
Q	Multi-cellular, has no chlorophyll, cell wall made of chitin, grows on decaying bread.
R	Multi-cellular, green, has vascular tissue, bears no flowers or seeds, reproduces by spores.
S	Single-celled, has no well-defined nucleus, cell wall present.

(i) To which kingdom does organism P belong? [1]

(ii) Name the kingdom of organism Q and state its mode of nutrition. [1]

(iii) To which group of plants does R belong? Give one reason. [1]

(iv) Why is organism S placed in kingdom Monera? [1]

Q38. A student mixed three substances separately with water and recorded the following observations. **[4]**

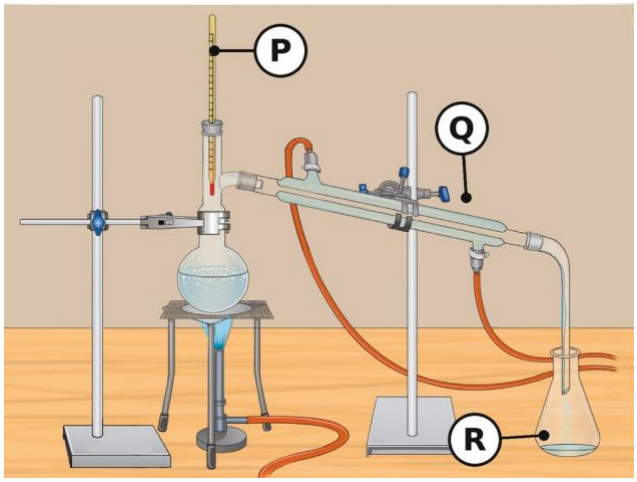
Mixture	Appearance and light beam	On standing	On filtering
A: copper sulphate in water	Clear; path of light beam not visible	Does not settle	Passes through filter paper
B: chalk powder in water	Opaque; path of light beam not visible	Particles settle down	Retained on filter paper
C: milk in water	Translucent; path of light beam is visible	Does not settle	Passes through filter paper

(i) Identify the true solution, the suspension and the colloid. [1]

(ii) Why does mixture C scatter a beam of light while mixture A does not? [1]

(iii) Name the method by which B can be separated from water. [1]

(iv) The apparatus shown below is used to obtain pure water from mixture A. Name the parts labelled P, Q and R. [1]



OR

Name a method to separate cream from mixture C and state the principle on which it works.

Q39. The table gives the number of subatomic particles in three neutral atoms P, Q and R. **[4]**

Atom	Protons	Neutrons	Electrons
P	6	6	6
Q	6	8	6
R	7	7	7

(i) Find the mass number of atom Q. [1]

(ii) What is the relationship between P and Q? Give a reason. [1]

(iii) What is the relationship between Q and R? Give a reason. [1]

(iv) Write the electronic configuration of atom R. [1]

OR

Give one use of an isotope.

— End of Question Paper —