

Harsh

DELHI POLICE PUBLIC SCHOOL
HALF YEARLY EXAMINATION (2024-25)

SCIENCE

Class: IX. -A

M.M: 80

Time: 3 hrs.

Date: 17/09/24

General Instructions:

1. The question paper have five sections- section A, B, C, D and E.
2. Section A- consists of multiple choice questions and carries 1 mark each
3. Section B- consists of short answer questions and carries 2 marks each
4. Section C- consists of short answer questions and carries 3 marks each
5. Section D- consists of long answer questions and carries 5 marks each

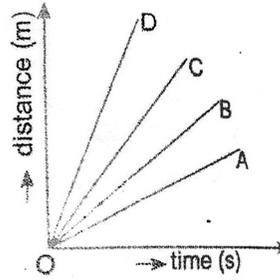
SECTION A (1 Marks)

1. In which of the following conditions, the distance between the molecules of hydrogen gas would increase?
(i) Increasing pressure on hydrogen contained in a closed container.
(ii) Some hydrogen gas leaking out of the container.
(iii) Increasing the volume of the container of hydrogen gas.
(iv) Adding more hydrogen gas to the container without increasing the volume of the container.
(a) (i) and (iii) (b) (i) and (iv) (c) (ii) and (iii) (d) (ii) and (iv)
2. On converting 23°C , 34°C and 69°C to Kelvin scale, the correct sequence of temperature will be
(a) 298 k, 311 k and 339 k
(b) 298 k, 300 k and 339 k
(c) 296 k, 307 k and 342 k
(d) 273 k, 310 k and 338 k
3. Which of the following will sublime on heating?
(a) Iodine (b) camphor (c) naphthalene (d) all of these
4. Which condition out of the following will increase the evaporation of water?
(a) Increase in temperature of water
(b) Decrease in temperature of water
(c) Less exposed surface area of water
(d) Adding common salt to water
5. Who coined the term element
(a) Antoine Lavoisier
(b) Robert Boyle
(c) Charles Darwin
(d) J L Proust
6. The composition of Bronze is
(a) 70% of copper and 30% of zinc
(b) 70% of zinc and 30% of copper
(c) 70% of copper and 30% of tin

- 16/06/04
- (d) 70% of copper and 30% of aluminium
7. The compound FeS is not attracted by the magnet because
- It is a mixture
 - It is black in colour
 - It does not contain iron
 - Iron has lost its magnetic properties
8. Plasmolysis in a plant cell is defined as:
- Breakdown of cell wall in hypotonic medium
 - Shrinkage of cytoplasm along with plasma membrane in hypertonic medium
 - Shrinkage of nucleoplasm
 - None of the above
9. Which of the following is covered by a single membrane:
- Mitochondria
 - Plastids
 - Lysosomes
 - Nucleus
10. Which of the following is an incorrect statement:
- Enzymes packed in lysosomes are made by RER (Rough Endoplasmic Reticulum).
 - Rough Endoplasmic Reticulum and Smooth Endoplasmic Reticulum produce proteins and lipids, respectively.
 - Mitochondria is said to be the powerhouse of the cell as ATP is generated in it.
 - Nucleoid is present inside the nucleoplasm of Eukaryotic cell.
11. If the tip of sugarcane plant is removed from the field, even then it keeps on growing in length. It is due to the presence of:
- Intercalary meristem
 - Apical meristem
 - Lateral meristem
 - Cambium
12. Which of the following is not an element of Xylem tissues:
- Tracheid
 - Vessels
 - Sieve-tubes
 - Xylem fibres
13. The inability of the body to change its state of rest or motion is:
- Momentum
 - Force
 - Inertia
 - Acceleration
14. If a train travelling at 72kmh^{-1} is brought to rest by applying brakes in a distance of 200m, then the retardation of the train is:
- 20ms^{-2}
 - 10ms^{-2}
 - 2ms^{-2}
 - 1ms^{-2}
15. The S.I. unit of momentum is:
- kgms^{-1}
 - ms/kg
 - kg/ms^2
 - $\text{Nm}^2\text{kg}^{-2}$

16. Four cars A, B, C and D are running on a levelled road. Their distance-time graphs are shown here. Choose the correct statement.

- a) Car B is running faster than car D
- b) Car A is slowest
- c) Car C is running slower than car B
- d) Car D is slowest



To be attempted Only by V.I.(visually impaired) students:

16. What does area of velocity-time graph give?

- a) Distance
- b) Acceleration
- c) Displacement
- d) None of the above

ASSERTION-REASON BASED QUESTION

Read the following Assertion(A) and Reason(R) carefully and select the most appropriate alternative from the four alternatives given below:

- a) Assertion and Reason are correct and the Reason is the correct explanation for Assertion.
- b) Assertion and Reason are correct and the Reason is not the correct explanation for Assertion.
- c) Assertion is true but Reason is false.
- d) Both Assertion and Reason are false.

17. ASSERTION : Colloidal particles are big enough to scatter light.

REASON : Composition of a compound is the same throughout.

18. ASSERTION(A): Parenchyma cells help in storage of food.

REASON(R) : Parenchyma cells are the main sites of photosynthesis.

19. ASSERTION: If net external force acting on an object is zero, its acceleration is zero.

REASON : Acceleration of an object does not depend on its mass.

20. ASSERTION(A): A cell swells up when present in hypotonic solution.

REASON(R) : More water molecules enter the cell than they leave.

SECTION-B (2 Marks)

21. Calculate the concentration of solution when 36 g of glucose is dissolved in 278 g of water.

22. Why are lysosomes known as the "suicide bags" of the cell? How many membrane layers does it have?

23. How are chromatin and chromosomes related to each-other? Name the protein that keeps chromosomes binded?

OR

- i) Cutting of trees ii) Respiration
- b) Give two points of differences between mixture and compound.
- c) Air can be classified both as homogenous and heterogeneous mixture. Justify

OR

34. a) Identify the type of following mixture
- i) Copper sulphate solution ii) brick
 - b) Give two points of differences between metals and non-metals
 - c) Which will boil at higher temperature distilled water or sea water? Give reason to justify your answer.
35. a) Describe any two membrane-bound cell organelles.
- b) Distinguish between the distinct characteristic of Chromoplast, Leucoplast and Chloroplast.

OR

35. a) Which cell organelle is known as the powerhouse of the cell and why?
- b) Outline the major differences between mitosis and meiosis with diagram.
36. a) A ball is gently dropped from a height of 20 m. if its velocity increases uniformly at the rate of 100 ms^{-2} . Find
- i) Its velocity with which it will strike the ground
 - ii) Time after which it strikes the ground.
- b) A motorcyclist drives from A to B with a uniform speed of 30 kmh^{-1} and returns back with a speed of 20 kmh^{-1} find its average speed.

OR

36. a) An athlete completes one round of a circular track of diameter 200 m in 40 s. What will be the distance covered and the displacement at the end of 2 min 20 s?
- b) A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3 ms^{-2} for 8 s. How far does the boat travel during this time?

SECTION- E (4 Marks)

CASE- STUDY BASED QUESTIONS

Read the following paragraph carefully and answer the following questions:

37. We know that particles of matter are always moving and are never at rest. At a given temperature in many gases, liquid or solid, there are particles with different amount s of kinetic energy. In the case of liquids, a small fraction of particles at the surface, having high kinetic energy, is able to break away from the forces of attraction of other particles and gets converted into vapour.
- a) How does the water kept in an earthen pot become cool during summer?
 - b) Why do we see water droplets on the outer surface of the glass containing ice cold water?
 - c) Suggest a method to liquefy atmospheric gases.

OR

- c) What is the physical state of water at :
- i) 0°C ii) 100°C

38. A few layers of cells beneath the epidermis are generally simple permanent tissue. Parenchyma is the most common simple permanent tissue. It consists of relatively unspecialized cells with thin cell walls. They are living cells. Collenchyma allows bending of various parts of the plant-like tendrils and stems of climbers without breaking. Sclerenchyma tissue makes the plant hard and stiff. We have seen the husk of a coconut. It is made of sclerenchymatous tissue. They are long and narrow as the walls are thickened due to lignin. The tissue is present in stems, around vascular bundles, in the veins of leaves and in the hard covering of seeds and nuts.

- a) Which of the simple permanent tissues increases the flexibility of plant?
- b) Differentiate between Parenchyma and Collenchyma tissues.
- c) Name the plant tissue that makes up the hard shell of apricots and coconuts, and mention its notable characteristic.

39. You must have seen rowing of boats in rivers or lakes. While rowing his boat, a boatman pushes the water backwards with his oars. In turn, the water exerts an equal and opposite force on the boat and the boat moves in water in forward direction.

- a) Name the type of force represented which is- exerted by boatman and by water? What is the relationship between the two forces?
- b) Which law of motion is involved here? Define it.
- c) Give another example of the said law.

OR

- c) Why does a ball rebound on striking a hard floor?