



Al Falah International School -DPS Jeddah



PT-2 Examination (2022-2023)

Grade: IX

Max. Marks: 60

Subject: Science (Code: 086)

Time: 2.5 Hr

This question paper consists of 30 questions in 5 sections.

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.

iii. Section A consists of 16 objective type questions carrying 1 mark each.

iv. Section B consists of 4 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.

v. Section C consists of 6 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words

vi. Section D consists of 2 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.

vii. Section E consists of 2 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION - A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 12

1. The property to flow is unique to fluids. Which one of the following statements is correct? **1**
 - a) Only gases behave like fluids.
 - b) Gases and solids behave like fluids.
 - c) Gases and liquids behave like fluids.
 - d) Only liquids are fluids.

2. A few substances are arranged in the increasing order of 'forces of attraction' between their **1** particles. Which one of the following represents a correct arrangement?
 - a) Water, air, wind

- b) Air, sugar, oil
 - c) Oxygen, water, sugar
 - d) Salt, juice, air
3. The boiling points of diethyl ether, acetone and n-butyl alcohol are 35°C, 56°C and 118°C respectively. Which one of the following correctly represents their boiling points in Kelvin scale? **1**
- a) 306 K, 329 K, 391 K
 - b) 308 K, 329 K, 392 K
 - c) 308 K, 329 K, 391 K
 - d) 329 K, 392 K, 308 K
4. Which of the following statements is not true about an atom? **1**
- a) Atoms are not able to exist independently.
 - b) Atoms are the basic units from which molecules and ions are formed.
 - c) Atoms are always neutral in nature.
 - d) Atoms aggregate in large numbers to form the matter that we can see, feel or touch.
5. Rutherford's 'alpha (α) particles scattering experiment' resulted into discovery of **1**
- a) electron
 - b) proton
 - c) nucleus in the atom
 - d) atomic mass.
6. An apple falls towards the earth because the earth attracts it and the apple also attracts the earth by same force. Why do we not see the earth rising towards the apple? **1**
- a) Acceleration of the earth is very large when compared to that of apple.
 - b) Acceleration of the earth is equal to that of apple.
 - c) Acceleration of earth is neither high nor too low.
 - d) Acceleration of the earth is very small when compared to that of apple.
7. Yana starts from her home and moves a distance of four kilometres towards east. She then turns to her right and covers a distance of three kilometres to reach school. Meanwhile, her brother Nikhil takes a short and direct route to reach the school. **1**

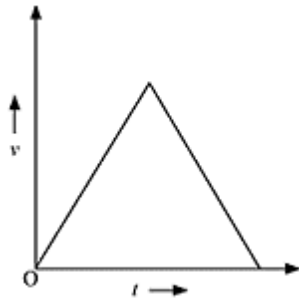
What is the difference between the displacement of Yana and Nikhil?

- a) 0 km
- b) 1,5 km
- c) 1 km
- d) 0.5 km

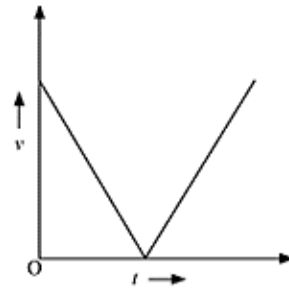
8. Atul throws a stone upward. After reaching a certain height, the stone falls back on the ground. (Neglect air resistance) 1

Which of the following velocity-time graphs represent the motion of the stone?

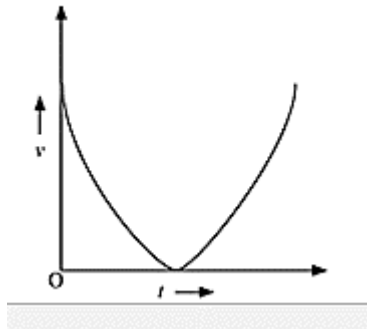
a)



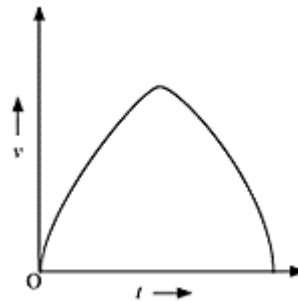
b)



c)



d)



9. A goalkeeper in a game of football pulls his hands backwards after holding the ball shot at the goal. This enables the goalkeeper to 1

- a) exert larger force on the ball
- b) reduce the force exerted by the balls on the hands
- c) increase the rate of change of momentum
- d) decrease the rate of change of momentum

- 10.** Is called the power house of a cell. **1**
- a) Mitochondria
 - b) ATP
 - c) Lysosomes
 - d) Plastids

- 11.** Which is not a function of epidermis?
- a) Transpiration
 - b) Gaseous exchange
 - c) Protection from adverse condition
 - d) Conduction of water

- 12.** Bone Matrix is rich in.....
- a) Fluoride and calcium
 - b) Calcium and phosphorous
 - c) Calcium and potassium
 - d) Phosphorous and potassium

Q. no 13 to 16 are Assertion - Reasoning based questions.

These consist of two statements – Assertion (A) and Reason (R). Answer these questions 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

- 13.** Assertion: Ice is float on water. **1**

Reason: Density of ice is lesser than water.

- 14.** Assertion: Protons cannot be transferred from one atom to another. **1**

Reason: Protons are present deep inside the atom in its nucleus.

- 15.** Assertion: An object may have acceleration even if it is moving with uniform speed. **1**

Reason: An object may be moving with uniform speed but it may be changing its direction of motion.

- 16.** Assertion: A cell swells up when placed in a hypotonic solution. **1**

Reason: more water molecules enter the cell than they leave.

SECTION B

Q. no. 17 to 20 are very short answer questions

17. Write down the electron distribution of chlorine atom. How many electrons are there in the L shell? (Atomic number of chlorine is 17). 2

OR

What were the drawbacks of Rutherford's model of an atom? 2

18. A farmer moves along the boundary of a square field of side 10 m in 40 s. What will be the magnitude of displacement of the farmer at the end of 2 min. 20 s? 2

OR

The minute hand of a wall clock is 10 cm long. Find its displacement and the distance covered from 10 a.m to 10.30 a.m. 2

19. a) It is dangerous to jump out of a moving bus. Explain why? 2

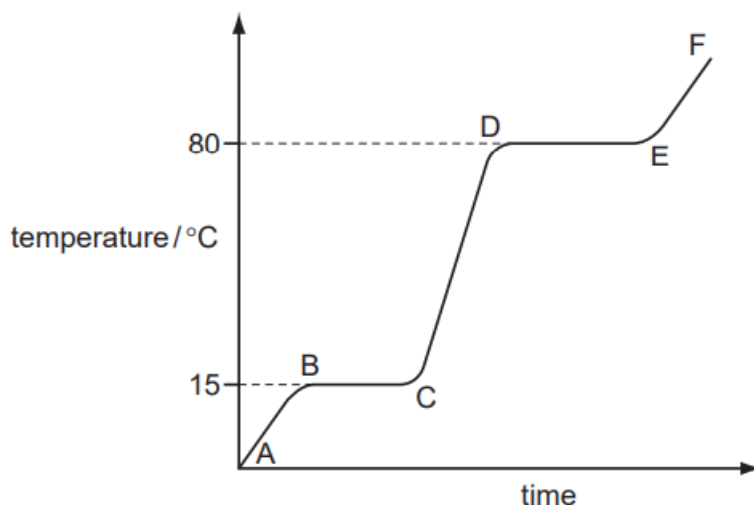
b) While catching a fast-moving ball, fielder gradually pulls his hand backwards. Give reasons.

20. Give the functions of smooth endoplasmic reticulum. 2

SECTION C

Q.no. 21 to 26 are short answer questions.

21. The diagram shows a heating curve for a sample of compound X. 3



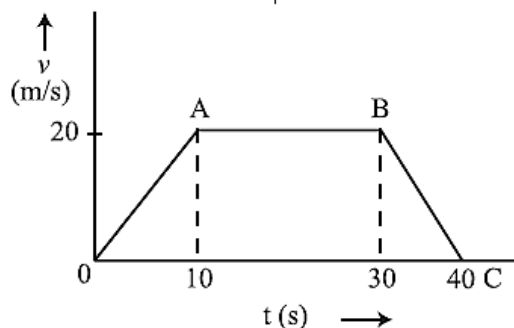
- a) Is X a solid, a liquid or a gas at room temperature, 20 °C?
b) In what state/s does the compound X exist in region BC?
c) Explain how the curve shows that a pure sample of compound X was used.

22. Write down the formulae of 3
- Sodium oxide
 - Aluminium chloride
 - Sodium sulphide

23. a) Using Newton's law of motion, derive the relation between force and acceleration. 3
- b) Which would require a greater force to accelerate a 1/2 kg mass at 5 m/s² or a 4 kg mass at 2 m/s²? Give reason.

OR 3

- Define force and give its S.I. unit.
- For a mass of 2 kg of v-t graph is given. Find the force experienced by the mass in OA, AB and BC.



24. a) State Archimedes' principle. 3
- b) A solid body of mass 150 g occupies 60 cm³ volume. Will the solid sink or float?
Given density of water is 1 g cm⁻³.
- c) Calculate the gravitational force acting between the Earth and an object of mass 1000 g kept on its surface.

25. Give the differences between a plant cell and an animal cell. 3

OR 3

Draw a neat and well labelled diagram of a plant cell.

26. Water hyacinth floats on the water surface. Explain.

Section D

Q.no. 27 and 28 are Long answer questions

27. a) Define work, energy and power. Give the SI units for each of these quantities. 5
b) A man whose mass is 80 kg climbs up 30 steps of the stairs in 30 s. If each step is 12.5 cm in height, calculate the power used in climbing the stairs, ($g = 10 \text{ m/s}^2$).

OR 5

- a) Derive an expression for the kinetic energy of an object. Write the S.I. unit of kinetic energy.
b) An object of mass 10 kg is moving with a uniform velocity of 5 ms^{-1} . Calculate kinetic energy.
28. a) State the differences between xylem and phloem. 5
b) Discuss in brief the role of areolar and adipose tissues.

OR 5

- a) Distinguish between striated muscle and smooth muscle.
b) Write a short note on cardiac muscles.

SECTION – E

Q.no. 29 and 30 are case - based/data -based questions with 2 to 3 short sub - parts.

Internal choice is provided in one of these sub-parts.

29. The phenomenon of change of a liquid into vapours at any temperature below its boiling point is called evaporation. In the case of liquids, a small fraction of particles at the surface, having higher kinetic energy, is able to break away from the forces of attraction of other particles and gets converted into vapour. If the amount of water is already high, the rate of evaporation decreases. In an open vessel, the liquid keeps on evaporating. The particles of liquid absorb energy from the surrounding to regain the energy lost during evaporation. After a hot sunny day, people sprinkle water on the roof or open ground because the large latent heat of vaporization of water helps to cool the hot surface and we prefer cotton clothes. 4
- a** If the surface area of increased, the rate of evaporation:
- a) Increase
b) Decrease

- c) Became zero
 - d) None of these
- b** Why clothes dry faster on a windy day?
- a) The rate of evaporation decrease
 - b) The rate of evaporation increase
 - c) Temperature increase
 - d) None of these
- c** Which of the following phenomena always results in cooling effect?
- a) Condensation
 - b) Evaporation
 - c) Sublimation
 - d) Boiling
- d** Why should we wear cotton clothes in summer?
- a) Cotton is a good absorber
 - b) Cause easy evaporation
 - c) Both a) and b)
 - d) Cotton is cheap

OR

- d** What happens when we acetone is poured on palm?
- a) Feel cool on palm
 - b) Absorbed in palm
 - c) Feel hot in palm
 - d) Skin corrodes.

- 30.** A boiled potato (A) and a raw peeled potato (B) are kept in a hypertonic solution. **4**
- a) What is a hypertonic solution?
 - b) What will happen in case (B)?
 - c) What will happen in case (A)? Why?

OR

- (c) Give the difference between a hypotonic and an isotonic solution.
