

BUDHA DAL PUBLIC SCHOOL PATIALA
First Term Examination (8 September 2023)
CLASS IX
PAPER- SCIENCE (SET-A)

M.M. 80

Time: 3 hr.

General Instructions:

- This question paper consists of 39 questions in 5 sections.
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 20 objective type questions carrying 1 mark each.*
 - iv) *Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.*
 - v) *Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.*
 - vi) *Section D consists of 3 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 3 source-based/case-based units of assessment of 04 marks each with sub-parts.*

Section - A

- Q1. The slope of V - T graph gives _____. (1)
- Q2. A block is at rest on a table. A girl applies a force towards the right. The applied force is equal to the frictional force between block and the surface. What will happen to the block? (1)
- a) it will start sliding towards left
 - b) it does not move
 - c) it starts rotating
 - d) it will start sliding towards right
- Q3. The gravitational force between two objects is F. If masses of both objects are halved without changing distance between them, then the gravitational force would become. (1)
- a) $F/4$
 - b) $F/2$
 - c) F
 - d) $2F$
- Q4. The acceleration due to gravity decreases with _____ a altitude from the surface of earth. (1)
- Q5. Which of the following type of matter has the weakest interparticle force of attraction (1)
- a) steam
 - b) liquid water
 - c) sand
 - d) iron
- Q6. Which of the following are homogeneous in nature? (1)
- i) Ice
 - ii) Wood
 - iii) Soil
 - iv) Air
- a) (i) and (iii)
 - b) (ii) and (iv)
 - c) (i) and (iv)
 - d) (iii) and (iv)

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- Q7. The freezing point of water is (1)
a) 273 K b) 298 K c) 373 K d) 300 K
- Q8. Which of the following are elements ?
i) Diamond ii) Liquid Mercury iii) Milk iv) Glucose
a) (i) and (ii) b) (ii) and (iii) c) (i), (ii) and (iv) d) (i), (ii) and (iii) (1)
- Q9. Liquid 'X' has stronger intermolecular forces than liquid Y. Will it boil at lower or higher temperature than Y. (1)
- Q10. What is dispersed phase and dispersion medium in smoke? (1)
- Q11. Cell wall of sclerenchyma tissues becomes strong, rigid and impervious to water due to the uniform deposition of (1)
a) cellulose b) lipids c) suberin d) lignin
- Q12. The living element present in the xylem is (1)
a) tracheids b) vessels c) xylem parenchyma d) xylem fibres
- Q13. Intercalary meristems are responsible for the growth of (1)
a) roots b) leaves & internodes
c) apices of stem & branches d) all of these
- Q14. The phenomenon of shrinkage of protoplast from the cell wall due to exosmosis in a plant cell when placed in a hypertonic solution (1)
a) endocytosis b) deplasmolysis c) plasmolysis d) imbibitions
- Q15. Which of the following is the advantage of selective permeability of the membrane? (1)
a) useful molecules enter the cell
b) metabolic intermediates remain within the cell
c) secretions and wastes leave the cell
d) all of these
- Q16. If the ribosomes of the cell are destroyed then (1)
a) respiration will stop
b) fats will not be stored
c) carbon assimilation will stop
d) proteins will not be formed

For the following questions, two statements are given - one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

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

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- Q18. Reason: Motion of moon around earth is a non-uniform motion. (1)
 Assertion: The size of moon is smaller than that of earth.
 Reason: The value of acceleration due to gravity does not depend upon mass of the body. (1)
 Reason: Acceleration due to gravity is a constant quantity.

OR

- Assertion: The value of 'g' is 9.8 m/s^2 .
 Reason: Radius is more at the equator than at the poles.
 Q19. Assertion: A mixture of sand and iron filling can be separated by using a magnet. (1)
 Reason: Iron filings and sand form heterogeneous mixture.
 Q20. Assertion: Both chloroplasts and mitochondria are semiautonomous organelles. (1)
 Reason: They are formed by division of pre-existing organelles and contain DNA but lack protein synthesizing machinery.
 OR
 Assertion: Parenchyma tissue helps in the storage of food in plants.
 Reason: Parenchyma tissue is the main seat of photosynthesis.

Section - B

- Q21. A particle moves in a circle with radius 5cm. Calculate distance and displacement of a body when it has covered half of the revolution. (2)
 Q22. A force of 20 N acts upon a body whose weight is 9.8N. What is the mass of the body and how much is its acceleration? Take $g = 9.8 \text{ m/s}^2$ (2)
 Q23. Classify the following as physical or chemical change (2)
 a) Cooking of food
 b) Melting of wax
 c) Cutting of sodium metal with knife
 d) Sublimation of iodine
 Q24. Give reason (2)
 i) Steam produces more severe burns than boiling water
 ii) Evaporation produces cooling.
 OR
 Convert the following temperature to the Celsius scale
 (i) 700 K (ii) 573 K
 Q25. Differentiate between smooth endoplasmic reticulum and rough endoplasmic reticulum (Give 2 points) (2)
 Q26. Which organelle is known as 'suicidal bags of the cell'? Why? (2)

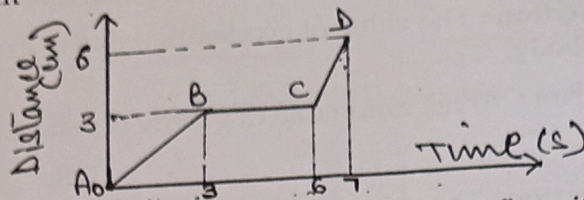
OR

Water Hyacinth floats on water surface. Explain.

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Section - C

The graph given below shows the positions of a body at different times. Calculate the speed of the body as it moves from



- A to B
- B to C and
- C to D

How much momentum will a dumb-bell of mass 10kg transfer to the floor if it falls from a height of 80cm? Take its downward acceleration to be 10 m/s^2 .

Define acceleration due to gravity. Derive an expression for acceleration due to gravity in terms of mass of earth (M) and universal gravitational constant (G).

Air is considered as mixture not compound. Justify your answer by giving 4 seasons.

Define emulsion. Give one example.

- What are the characteristics of the particles of matter (any two)
- What do you understand by
 - Saturated solution
 - unsaturated solution

- Give reason for -
Intercellular spaces are absent in sclerenchymatous tissues.
- Draw well labelled diagram to show section of phloem.

In brief, state what happens when -

- Rheo leaves are boiled in water first and then drop of sugar syrup is put on it?
- A cell containing higher water concentration as compared to its surrounding medium.
- A cell having lower water concentration as compared to its surrounding medium.

Section - D

Give reasons for the following:

- Karate player can break a pile of tiles in a single blow of hand.
- Action and Reaction do not cancel out each other if they are equal and opposite.
- Passengers fall forward when a moving car stops suddenly.
- Dust comes out of the carpet when it is beaten with a stick.
- Cricket player lowers his hands while catching a fast moving ball.

OR

State Newton's second law of motion. Deduce a mathematical expression for force from it and hence define 1 Newton.

A-4

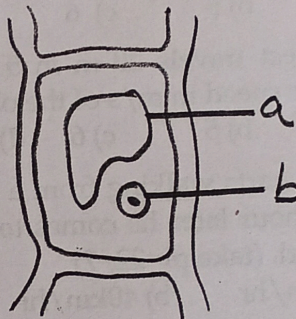
- a) A solution contains 25gm of sugar in 100gm of water. What is the mass percentage? (5)
- b) Classify the following substances as mixture (homo/hetero) or pure substances.
- Sugar dissolved in water
 - Sand and water
 - Carbon dioxide
 - Mercury
 - Blood
 - Filtered tea

OR

- a) Distinguish between Suspension and colloids on the basis of following parameters
- Size
 - Filtration criteria
 - stability
- b) What mass of potassium sulphate (K_2SO_4) would be needed to prepare a saturated solution in 250gm of water at $60^\circ C$. The solubility of K_2SO_4 in water is 16gm at $25^\circ C$

Q36.

- 1) Differentiate between Parenchyma and collenchymas (give 3 points)
- 2) a) Label 'a' and 'b' in the given figure.
b) Give one function of 'a'



(5)

Section - E

Q37.

In nature, water keeps on changing its form. The heat of the sun evaporates the water on the surface of the earth into vapour. The evaporation of water takes place from oceans, rivers, lakes and ponds all the time. Sometimes, it is slow and sometimes, it is fast. The reverse process of evaporation is condensation, in which water vapour change into water by cooling. (1×4)

The formation of clouds, rain and water cycle is due to these two processes. Like evaporation, condensation also plays very important role in nature. Because of condensation, dew, fog, frost, hail, snow, etc., are formed under different conditions.

Q1. Evaporation is not effected by

- a) Temperature b) humidity c) surface area d) pressure

Q2. Which of the following changes represent evaporation process?

- a) drying of clothes b) formation of clouds
c) melting of ice d) conversation of water in steam

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Q3. Evaporation of water does increase by

- a) increase in surface area
- b) increase in humidity
- c) decrease in wind speed
- d) none of these

Q4. Which of the following is not true?

- a) Condensation process is reverse of evaporation
- b) Evaporation bring cooling
- c) Temperature of a substance remain constant during melting
- d) Evaporation is not a surface phenomenon

Q38.

The speed of an object need not be constant. In most cases, objects will be in non-uniform motion. Therefore we describe the rate of motion of such objects in terms of their average speed. The average speed of an object is obtained by dividing the total distance travelled by the total time taken. That is, average speed = total distance travelled / total time taken. Answer the following. (1×4)

- 1) An object travels 20 m in 5 s and then another 20 m in 5s. What is the average speed in m/s of the object?
a) 4 b) 5 c) 6 d) none of these
- 2) An object travels 20 m in 5 s and then another 40 m in 5s. What is the average speed in m/s of the object?
a) 4 b) 5 c) 6 d) none of these
- 3) A man starts walking from a point P on a circular field of radius 7 km and after 1 hour later he comes to same point P after one complete round. find his speed. (take $\pi = 22/7$)
a) 30km/hr b) 40km/hr c) 44km/hr d) 33km/hr
- 4) A man travelled on square field of side 10m. He completed one round of field by taking time 2s, 3s 1s and 2s respectively for each side. Find his average speed.
a) 4m/s b) 5m/s c) 6m/s d) 7m/s

Q39.

The growth of plants occur only in certain specific regions. This is because the dividing tissue, also known as meristematic tissue, is located only at these points. Depending on the region where they are present, meristematic tissues are classified as apical, lateral and intercalary. New cells produced by meristem are initially like those of meristem itself, but as they grow and mature, their characteristics slowly change and they become differentiated.

Read the paragraph and answer the following questions (a) to (d) with correct options:

- a) How does growth differ among plants and animals?
 - 1) Animals possess specific regions for growth
 - 2) Plants have specific regions for growth

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- 3) In plants growth is diffused.
- 4) Animals continue to grow throughout their life.
- b) The area where growth occurs in plants is called
 - 1) Meristem 2) Node 3) Internode 4) Progenitor
- c) Growth in girth of plant occurs due to
 - 1) Apical meristem 2) Intercalary meristem
 - 3) Lateral meristem 4) None of the above
- d) Meristem for growth of leaf is present over its
 - 1) Apex 2) Margins 3) Base 4) All the above

OR

- d) Meristem tissue is divided into how many types?
 - 1) one 2) two 3) three 4) four