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PERIODIC TEST – II EXAMINATION 2023-24

CLASS : IX SUBJECT : SCIENCE

MM: 80 TIME : 3 HRS

General Instructions:

i. This question paper consists of 39 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 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. Answers 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

1. In all the three states of water, (i.e. ice, liquid and vapour) chemical composition of water

(a) is very different

(b) remains same

(c) sometimes same and sometimes different

(d) none of the above

2. Which of the following statements is incorrect about the state of matter?

(a) The force of attraction between the gas particles is very less.

(b) Plasma consists of super energetic and super excited particles.

(c) The plasma glows with a special colour depending on the nature of the gas.

(d) Bose-Einstein condensate is formed by heating gas of extremely low density.

3. Which of the following is not a property of gas?

(a) Gases have a definite shape

(b) Gases have no definite volume

(c) The rate of diffusion of a gas is higher

(d) Gaseous particles are in a state of random motion

4. A form of matter that has no fixed shape but has a fixed volume. An example of this form of matter is ——————

(a) carbon dioxide (b) ice (c) water vapor (d) kerosene

5. What is true about homogeneous mixture?

(a) Homogeneous mixture is the mixture of two or more than two components.

(b) In homogeneous mixture the composition and properties are uniform throughout the mixture

(c) both (a) and (b) are true

(d) none of the above

6. Which of the following properties does not describe a compound?

(a) It is composed of two or more elements

(b) It is a pure substance.

(c) It cannot be separated into constituents by physical means

(d) It is mixed in any proportion by mass

7. In the tincture of iodine, find the solute and solvent?

(a) alcohol is the solute and iodine is the solvent

(b) iodine is the solute and alcohol is the solvent

(c) any component can be considered as solute or solvent

(d) tincture of iodine is not a solution

8. Which of the following is not a homogeneous mixture?

(a) Air (b) Tincture of iodine (c) Sugar solution (d) milk

9. _____ is called the energy currency of the cell

a. Endoplasmic reticulum
b. Oxygen
c. ATP
d. Mitochondria

10. _____ is called the powerhouse of the cell

a. Mitochondria
b. ATP
c. Lysosomes
d. Red blood cells

11._____ coined the term “cell.”

a. Gorbachev
b. Himmler
c. Robert Hooke
d. Antonie van Leeuwenhoek

12. Which of the following statements is incorrect?

a. Cytoplasm is also known as protoplasm
b. Lysosomes are known as the suicide bags of the cell
c. Mitochondria has its own DNA
d. All of the above are incorrect

13. The path length travelled by a body in a given time interval is known as _____.

a. distance
b. velocity
c. acceleration
d. moment

14. Which of the following situations is true and possible?

a. If the velocity of a body is zero, then the acceleration can be non-zero
b. A body moving at a constant velocity can have acceleration
c. The magnitude of distance and displacement are equal in a circular motion
d. All of the above

15. Velocity is defined as _____ per time.

a. distance
b. displacement
c. power
d. acceleration

16. A body moving in a straight line has a uniform motion if it travels _____ distance in equal time intervals.

a. equal

b. unequal

Directions: In each of the following questions, a statement of Assertion is given and a corresponding statement of Reason is given just below it. Of the statements, given below, mark the correct answer as:
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Both Assertion and Reason are false.

17. Assertion : Parenchyma cells help in storage of food.
Reason : Parenchyma cells are the main seats of photosynthesis.

18. Assertion : Vascular or conductive tissue is a distinctive feature of complex plants.
Reason : Vascular tissue has made survival of complex plants possible in terrestrial environment.

19. Assertion : The inner lining of intestine has tall epithelial cells.
Reason : Columnar epithelium facilitates absorption and secretion.

20. Assertion : Permanent tissue is composed of mature cells.
Reason : Meristematic tissue is a group of actively dividing cells.

SECTION – B

21. A diver is able to cut through water in a swimming pool. Which property of matter does this observation show?

22. What are the characteristics of the particles of matter?

23. To make a saturated solution, 36 g of sodium chloride is dissolved in 100 g of water at 293 K. Find its concentration at this temperature.

24. Why are lysosomes known as suicide bags?

25 A . What are the constituents of phloem? **OR**

25 B . What are the constituents of xylem?

26. 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 minutes 20 seconds?

SECTION – C

27. Give reason for the following observations.

(a) Naphthalene balls disappear with time without leaving any solid.
(b) We can get the smell of perfume sitting several metres away.

28. Which of the following are chemical changes?
(a) Growth of a plant
(b) Rusting of iron
(c) Mixing of iron filings and sand
(d) Cooking of food
(e) Digestion of food
(f) Freezing of water
(g) Burning of a candle.

29. Pragya tested the solubility of three different substances at different temperatures and collected the data as given below (results are given in the following table, as grams of substance dissolved in 100 grams of water to form a saturated solution).

(a) What mass of potassium nitrate would be needed to produce a saturated solution of potassium nitrate in 50 grams of water at 313 K?

(b) Pragya makes a saturated solution of potassium chloride in water at 353 K and leaves the solution to cool at room temperature. What would she observe as the solution cools? Explain.

(c) What is the effect of change of temperature on the solubility of a salt?

Substance Dissolved	Temperature in K				
	283	293	313	333	353
Potassium nitrate	21	32	62	106	167
Sodium chloride	36	36	36	37	37
Potassium chloride	35	35	40	46	54
Ammonium chloride	24	37	41	55	66

30. How does an *Amoeba* obtain its food?

31. Draw a well-labelled diagram of a nerve cell and explain its structure.

32. A bus starting from rest moves with a uniform acceleration of 0.1 m s-2 for 2 minutes. Find (a) the speed acquired, (b) the distance travelled.

33A. A stone is thrown in a vertically upward direction with a velocity of 5 m s-1. If the acceleration of the stone during its motion is 10 m s–2 in the downward direction, what will be the height attained by the stone and how much time will it take to reach there? **OR**

33B. A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of 10 m s-2, with what velocity will it strike the ground? After what time will it strike the ground?

SECTION – D

34A. (a)Why is ice at 273 K more effective in cooling than water at the same temperature?
(b) What produces more severe burns, boiling water or steam? **OR**

34B (I) Convert the following temperatures to the Celsius scale.
(a) 300 K (b) 573 K.
(II) Convert the following temperatures to the Kelvin scale.
(a) 25°C (b) 373°C.

35. (a) How are sol, solution and suspension different from each other?
(b)To make a saturated solution, 36 g of sodium chloride is dissolved in 100 g of water at 293 K. Find its concentration at this temperature.

36. State which of the following situations are possible and give an example for each of these:
(a) an object with a constant acceleration but with zero velocity
(b) an object moving in a certain direction with an acceleration in the perpendicular direction.

SECTION – E

37. Plant cells, in addition to the plasma membrane, have another rigid outer covering called the cell wall. The cell wall lies outside the plasma membrane. The plant cell wall is mainly composed of cellulose. Cellulose is a complex substance and provides structural strength to plants. When a living plant cell loses water through osmosis there is shrinkage or contraction of the contents of the cell away from the cell wall. This phenomenon is known as plasmolysis.

(1) Which of the following is the main constituent of cell wall?

(a) Proteins

(b) Lipids

(c) Lipoproteins

(d) Cellulose

(2) Which of the following is outer most covering of the plant cell?

(a) Cell membrane

(b) Plasma membrane

(c) Cell wall

(d) Cellulose

(3) Choose the correct set of statements from the following.

Statement 1 – Cell wall lies outside the plasma membrane.

Statement 2 – Cell wall is mainly composed of cellulose.

Statement 3 – Cellulose is a complex substance and provides structural strength to plants.

Statement 4 – Cell wall lies outside the plasma membrane.

(a) Statement 1 & 3

(b) Statement 1 & 2

(c) Statement 3 & 4

(d) All statement are correct

(4) What is mean by plasmolysis?

38. Bone is a solid, hard porous tissue. It forms the natural skeleton and gives the body its basic structure and also supports the body. Its matrix is impregnated with phosphates and carbonates of calcium and magnesium which provides hardness to it. The matrix also contains ossein protein. The matrix is arranged in concentric rings which are called lamellae. Bone cells lie between the lamellae in fluid-filled spaces called lacunae.

(i) Bone cells are also called :
(a) Lacunae
(b) Osteocytes
(c) Neutrophils
(d) Erythrocytes

(ii) The matrix inside the bone is arranged in concentric rings called ……
(a) Cytoplasm
(b) Osteocyte
(c) Lacunae
(d) Lamellae

(iii) To form natural skeleton and to give support to the body is the main function of …….
(a) Cells
(b) Muscles
(c) Bones
(d) Ligaments

(iv) The matrix of bone is impregnated with……
(a) Carbon dioxide and oxygen
(b) Carbon dioxide and water
(c) Sulphates of sodium
(d) Phosphates and carbonates of calcium and magnesium

(v) Bone cells lie between the lamellae in fluid-filled spaces called …….
(a) lamina
(b) osteocytes
(c) lacunae
(d) ossein

39. Distance is the length of the actual path covered by an object, irrespective of its direction of motion. Displacement is the shortest distance between the initial and final positions of an object in a given direction.
Distance is a scalar quantity. Displacement is a vector quantity. Distance covered can never be negative. It is always positive or zero. Displacement may be positive, negative or zero.

(i) _____ is the actual path covered by an object.
(a) Speed
(b) Motion
(c) Velocity
(d) Distance

(ii) _____ is the shortest distance between the initial and final positions of an object.
(a) Displacement
(b) Acceleration
(c) Distance
(d) Motion

(iii) Which of the following is a scalar quantity?
(a) Displacement
(b) Distance
(c) Velocity
(d) Acceleration

(iv) Which of the following is vector quantity?
(a) Displacement
(b) Velocity
(c) Acceleration
(d) All of these

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