

**NAAHAR PUBLIC SCHOOL CBSE SENIOR SECONDARY, VILLUPURAM**  
**PERIODIC TEST- IV EXAMINATION (DECEMBER'22)**

**CLASS: IX**

**DATE: 20-12-2022**

**SUBJECT: SCIENCE**

**MARKS: 80**

**SUBJECT TEACHER: Mrs. GAYATHRI, Mrs. UMA, Mrs. NISHANTHI**

**DUR: 3Hrs**

**General Instructions:**

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
3. Section A consists of 20 Objective Type questions carrying 1 mark each.
4. 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.
5. 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.
6. 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.
7. Section E consists of 3 source-based/case-based units of assessment

**SECTION-A**

*Select and write one most appropriate option out of the four options given for each of the questions 1 – 20*

1. The atomic symbol of silver is \_\_\_\_\_  
 (a) Si (b) S (c) Au (d) Ag
2. What is the value of Avogadro's number?  
 (a)  $6.02 \times 10^{-23}$  (b)  $6.02 \times 10^{23}$  (c)  $6.02 \times 10^{-22}$  (d)  $6.02 \times 10^{22}$
3. How many moles are present in 40 g of He?  
 (a) 5 moles (b) 20 moles (c) 6 moles (d) 10 moles
4. Atomic mass of Chlorine is \_\_\_\_\_ (u)  
 (a) 34 (b) 34.5 (c) 35 (d) 35.5
5. Atomic number (Z) is equal to \_\_\_\_\_  
 (a) Number of protons in the nucleus of an atom.  
 (b) Number of electrons in a neutral atom  
 (c) Both (a) and (b)  
 (d) None of the above
6. Two atoms are said to be Isobars if \_\_\_\_\_  
 (a) They have same atomic number but different mass number  
 (b) They have same number of electrons but different number of neutrons  
 (c) They have the same number of neutrons but different numbers of electrons.  
 (d) None of the above
9. Who discovered the electron?  
 (a) Goldstein (b) J.J Thomson (c) Chadwick (d) Eugen Goldstein
8. Plasmolysis in a plant cell is defined as  
 (a) break down (lysis) of plasma membrane in hypotonic medium  
 (b) shrinkage of cytoplasm in hypertonic medium  
 (c) shrinkage of nucleoplasm  
 (d) none of them
9. Amoeba acquires its food through a process, termed  
 (a) exocytosis (b) endocytosis  
 (c) plasmolysis (d) exocytosis and endocytosis
10. Which one is not a source of carbohydrate?  
 (a) Rice (b) Millets (c) Sorghum (d) Gram
11. Find out the wrong statement from the following  
 (a) White revolution is meant for increase in milk production  
 (b) Blue revolution is meant for increase in fish production  
 (c) Increasing food production without compromising with environmental quality is called as sustainable agriculture  
 (d) None of the above
12. Which of the following are Indian cattle?  
 (i) *Bos indicus* (ii) *Bos domestica* (iii) *Bos bubalis* (iv) *Bos vulgaris*  
 (a) (i) and (iii) (b) (i) and (ii) (c) (ii) and (iii) (d) (iii) and (iv)
13. When a number of forces acting simultaneously on a body bring about a change in its state of rest or of uniform motion in a straight line, then these forces acting on the body are said to be  
 (a) balanced forces (b) equal forces (c) unbalanced forces (d) opposite forces

14. A man is standing on a boat in still water. If he walks towards the shore, then the boat will  
 (a) move away from the shore (b) move towards the shore  
 (c) remain stationary (d) none of these
15. The distance between two bodies becomes 6 times more than the usual distance. The the F becomes  
 a. 36 times b. 6 times c. 12 times d. 1/36 times
16. The gravitational force causes  
 a. Tides b. Motion of moon c. None of them d. Both a and b

### ASSERTION -REASON TYPE QUESTIONS

In the following questions, two statements (Assertion) A and Reason (R) are given.

Mark

- (a) If A and R both are correct and R is the correct explanation of A  
 (b) If A and R both are correct 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

17. ASSERTION-No. of electrons always equal to the proton no. of atom.

REASON-Same no. of proton and electron present in atom makes it stable.

18. Which among the following statements are correct with respect to hybridisation?

Statement 1: Hybridisation of two different species of the same genus is interspecific hybridisation.

Statement 2: Hybridisation of different genera is possible.

Statement 3: Introduction of a gene is intergeneric hybridisation.

- A. Statements 1 and 3 are correct. B. Statements 1 and 2 are correct  
 C. Only statement 3 is correct. D. Statements 1, 2, and 3 are correct.
19. Which of these options are not a function of Ribosomes?  
 (i) It helps in manufacture of protein molecules  
 (ii) It helps in manufacture of enzymes  
 (iii) It helps in manufacture of hormones  
 (iv) It helps in manufacture of starch molecules  
 (a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (iv) and (i)

**20. Assertion:** A rocket works on the principle of conservation of linear momentum.

**Reason:** For two bodies system when there is a change in momentum of one body, the same change occurs in the momentum of the second body but in the opposite direction.

### SECTION-B

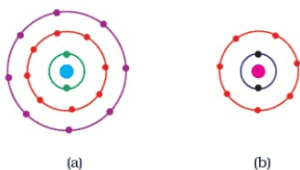
**Q. No. 20-25 are very short question answers**

21. State the number of atoms present in each of the following chemical species

- (a)  $\text{CO}_3^{2-}$  (b)  $\text{PO}_3^{3-}$  (c)  $\text{P}_2\text{O}_5$  (d) CO

(OR)

Find out the valency of the atoms represented by the Fig (a) and (b).



23. Why are lysosomes known as suicide bags?  
 24. What is osmosis?  
 25. a. What happens when a wet piece of cloth is shaken?  
 b. A heavy leather ball and a light tennis ball are kept on the floor of a moving train. When train is suddenly stopped, they are set in motion. In which direction will they move? Which one of them will attain higher velocity?

(OR)

A stone is dropped from a cliff. What will be its speed when it has fallen 100 m?

26. What are the desirable agronomic characteristics for crop improvement?

### SECTION- C

**Q. No. 27-32 are short answer type questions**

27. Find the number of protons and neutrons in the nucleus of an atom of an element X which is represented as  $^{207}\text{X}_{82}$ .

28. What are the limitations of J.J. Thomson's model of the atom?

29. Why is the cell called the structural and functional unit of life?

(OR)

Differentiate between prokaryotic and eukaryotic cells.

30. A body of mass 'm' is moving with a velocity u. When a force is applied on it for time t, its velocity increases to 'v'. Write expressions for

- (a) Initial and final momentum,  
 (b) Change in momentum  
 (c) Rate of change of momentum. Also write SI unit for each

31. a. It is dangerous to jump out of a moving bus. Why?

- b. It is difficult to balance our body when we accidentally step on a peel of banana. Explain, why?
32. The volume of 50 g of a substance is  $20 \text{ cm}^3$ . If the density of water is  $1 \text{ g/cm}^3$ , will the substance float or sink?

(OR)

From a rifle of mass 4 kg, a bullet of mass 50 g is fired with an initial velocity of 35 m/s. Calculate the initial recoil velocity of the rifle.

33. What are the advantages of composite fish culture?

#### SECTION-D

**Q. No. 34-37 are of long answer type and carries 5 marks each**

34. Explain with examples

- (i) Atomic number, (ii) Mass number, (iii) Isotopes and (iv) Isobars.  
Give any two uses of isotopes.

35. A) What are the advantages of inter-cropping and crop rotation? (3 m)  
B) What is pasturage, and how is it related to honey production? (2m)

(OR)

- A) What would happen to the life of a cell if there was no Golgi apparatus? (3m)  
B) Which organelle is known as the powerhouse of the cell? Why? (2m)

36. Derive the mathematical formula of conservation of momentum.

#### SECTION-E

**Question number. 37 to 39 are case based study questions.**

**Read the following and answer the questions .**

A mole of an atom is a collection of atoms whose total mass is the number of grams equal to the atomic mass. Since equal number of moles of different elements contain an equal number of atoms it becomes convenient to express the amounts of the elements in terms of moles. A mole represents a definite number of particles viz, atoms, molecules, ions or electrons. This definite number is called Avogadro number or Avogadro constant which is equal to  $6.022 \times 10^{23}$ . Hence a mole represents  $6.022 \times 10^{23}$  particles of the substance. One mole of substance represents one gram-formula of the substance. One mole of a gas at standard temperature and pressure occupies 22.4 litres

- (i) How many grams of sodium must be taken to get 1 mole of the element ?  
(a) 23 g (b) 35.5 g (c) 63.5 g (d) 46 g
- (ii) What is the mass in grams of a single atom of chlorine? (Atomic mass of chlorine = 35.5)  
(a)  $6.54 \times 10^{23} \text{ g}$  (b)  $5.9 \times 10^{-23} \text{ g}$  (c) 0.0025 g (d) 35.5 g
- (iii) How many number of moles are there in 5.75 g of sodium ? (Atomic mass of sodium = 23)  
(a) 0.25 (b) 0.5 (c) 1 (d) 2.5
- (iv) What is the mass in grams of 2.42 mol of zinc? (Atomic mass of Zn = 65.41)  
(a) 200 g (b) 25 g (c) 85 g (d) 158 g

38. The discovery of the cell was made possible through the invention of the microscope. The cell was first discovered by English physicist Robert Hooke in 1665. He observed cork slice under the microscope. It is actually a dead cells. The cell walls observed by Hooke gave no information about the nucleus and cell organelles. The First man to witness living cell was Anton von Leeuwenhook in 1674.

- 1) Apparatus which is used to magnify the image  
a) Periscope b) Telescope c) Microscope d) Petridish
- 2) Who discovered living cell?  
a) Hook b) Leeuwenhook c) Schleiden d) Schwann
- 3) Who discovered the cell?  
a) Hook b) Purkinje c) Leeuwenhook d) Robert Frost
- 4) Plant cell wall is made up of \_\_\_\_  
a) Chitin b) Glucose c) Protein d) Cellulose

39. Newton's first law of motion states that a body at rest will remain at rest position only and a body which is in motion continues to be in motion unless otherwise they are acted upon by an external force. In other words, all objects resist a change in their state of motion. In a qualitative way, the tendency of undisturbed objects to stay at rest or to keep moving with the same velocity is called inertia. This is why, the first law of motion is also known as the law of inertia. Answer the following questions.

**(i) The first law of motion is also known as**

- (a) law of inertia (b) Law of thermodynamics (c) Both a and b (d) None of these

**(ii) If no external force acts on object which is at rest, it will**

- (a) Remain at rest (b) Start to move (c) Both a and b can possible (d) None of these

**(iii) If no external force acts on moving object, it will**

- (a) Stop moving  
(b) Continue to move with same speed in same direction  
(c) Changes its direction of motion  
(d) None of these

**(iv) State Newton's first law of motion.**

**(v) Why Newton's first law of motion is called law of inertia**