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**I. Choose the correct answer:**

12 x 1 = 12

1. Which among the following is not a device to measure mass?  
a) spring balance    b) beam balance    c) physical balance    d) digital balance
2. The centrifugal force is \_\_\_\_\_.  
a) real force    b) the force of reaction of centripetal force  
c) virtual force    d) directed towards the centre of the circular path
3. Clouds float in atmosphere because of their low  
a) density    b) pressure    c) velocity    d) mass
4. An example of a substance that sublimates is \_\_\_\_\_.  
a) camphor    b) ice cube    c) common salt    d) chalk piece
5. Change in the number of neutrons in an atom changes it to \_\_\_\_\_.  
a) an ion    b) an isotope    c) an isobar    d) another element
6. Modern periodic law states that the physical and chemical properties of elements are the periodic functions of their \_\_\_\_\_.  
a) atomic numbers    b) atomic masses    c) similarities    d) anomalies
7. The animal without skull is  
a) acrania    b) acephalia    c) apteria    d) acoelomate
8. Water vascular system is found in  
a) hydra    b) earth worm    c) star fish    d) ascaris
9. Smooth muscles occur in  
a) uterus    b) artery    c) vein    d) all of the above
10. The bending of root of a plant in response to water is called \_\_\_\_\_.  
a) thigmonasty    b) phototropism    c) hydrotropism    d) photonasty
11. Transpiration takes place through \_\_\_\_\_.  
a) fruit    b) seed    c) flower    d) stomata
12. \_\_\_\_\_ belongs to the generation IV of the computer.  
a) microprocessor    b) artificial intelligence    c) transistor    d) vacuum tubes

**Part - II**

**II. Answer any 7 questions: (Ques. No 22 is compulsory)**

7 x 2 = 14

13. Can you find the diameter of a thin wire of length 2 m using the ruler from your instrument box?
14. a) The instrument used to measure atmospheric pressure \_\_\_\_\_.  
b) A drinking straw works on the existence of \_\_\_\_\_.
15. You have just won a medal made of 22 carat gold. Have you just procured a pure substance or impure substance?
16. State whether true or false. If false, correct the statement.  
a) Smaller the size of the orbit, lower is the energy of the orbit.  
b) The maximum number of electrons in L shell is 10.
17. Assertion and Reason:  
Statement : Elements in a group generally possess similar properties but elements along a period have different properties.  
Reason : The difference in electronic configuration makes the element differ in their chemical properties along a period.  
a) Statement is true and reason explains the statement  
b) Statement is false but reason is correct
18. Are jelly fish and star fish similar to fishes? If no justify the answer.
19. a) \_\_\_\_\_ tissues provides mechanical support to organs.  
b) Epithelial cells with cilia are found in \_\_\_\_\_ of our body.

- 20 a) The solar tracking of sunflower in according with the path of sun is \_\_\_\_\_  
 b) The response of a plant towards gravity is \_\_\_\_\_
- 21 What is data processing?
- 22 Match the following

A	B
i) Velocity and time	$s = ut + \frac{1}{2}at^2$
ii) Displacement and time	$v^2 = u^2 + 2as$
iii) Displacement and velocity	$v = u + at$

## Part - III

## III. Answer any 7 questions: (Ques.No.32 is compulsory)

7 x 4 = 28

- 23 Inian and Ezhilan argue about the light year. Inian tells that it is  $9.46 \times 10^{15}$  m and Ezhilan argues that it is  $9.46 \times 10^{12}$  km. Who is right? Justify your answer.
- 24 a) Why does a helium balloon float in air?  
 b) State Pascal's law.
- 25 Explain Tyndall effect with suitable diagram.
- 26 Calculate the number of neutrons, protons and electrons.  
 i) Atomic number 3 and mass number 7.  
 ii) Atomic number 92 and mass number 238.
- 27 What are the limitations of Mendeleev's periodic table?
- 28 Differentiate between flat worms and round worms.
- 29 Describe the different types of parenchyma.
- 30 Differentiate phototropism from photonasty.
- 31 Suppose you have a rose plant growing in a pot. how will you demonstrate transpiration in it?
- 32 A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of  $10 \text{ ms}^{-2}$ , with what velocity will it strike the ground. After what time will it strike the ground?

## Part - IV

## IV. Answer all the questions:

3 x 7 = 21

33. Derive the equations of motion by graphical method.

(or)

Explain the construction and working of a hydrometer with diagram.

34. Explain the postulates of Bohr's atomic model.

(or)

- a) State any five features of modern periodic table.  
 b) State true or false. If false, correct the statement.

- i) Metals can gain electrons.  
 ii) Alloys bear the characteristics of both metals and non metals.

35. Write about the elements of xylem.

(or)

- a) Imagine that student A studied the importance of certain factors in photosynthesis. He took a potted plant and kept in it dark for over 24 hours. In the early hours of the next morning, he covered one of the leaves with dark paper in the centre only. Then he placed the plant in sunlight for a few hours and tested the leaf which was covered with black paper for starch.  
 i) What aspect of photo synthesis was being investigated?  
 ii) Why was the plant kept in the dark before the experiment?  
 iii) How will you prove that starch is present in the leaves?  
 iv) What are raw materials needed for photo synthesis?
- b) Photo synthesis converts energy X into energy Y.  
 i) What are X and Y?  
 ii) Green plants are autotrophic in their mode of nutrition. Why?