

## Self Assessment Paper

## Section 'A'

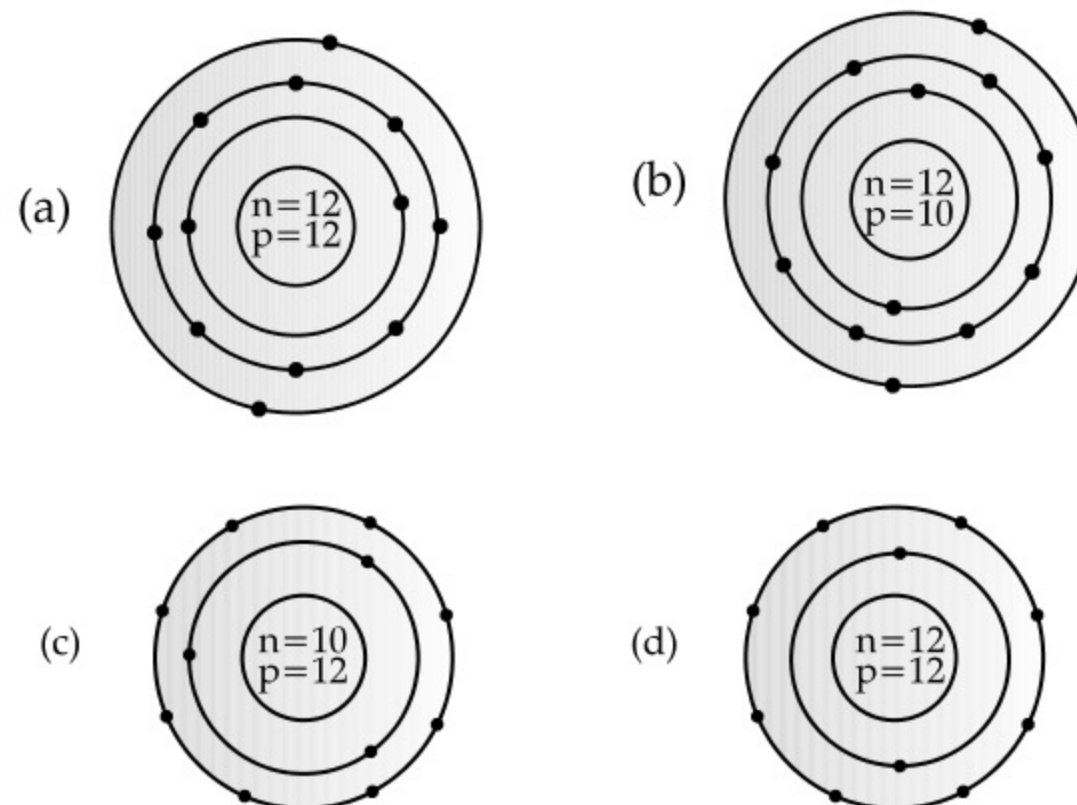
1. The water conducting tissue generally present in gymnosperm is
- (a) Vessels (b) Sieve tube  
(c) Tracheids (d) Xylem fibres

OR

- Nervous tissue is not found in
- (a) Brain (b) Spinal cord  
(c) Tendons (d) Nerves
2. Which of the following are physical changes?
- (i) Melting of iron metal (ii) Rusting of iron  
(iii) Bending of an iron rod (iv) Drawing a wire of iron metal
- (a) (i), (ii) and (iii) (b) (i), (ii) and (iv)  
(c) (i), (iii) and (iv) (d) (ii), (iii) and (iv)
3. The ion of an element has 3 positive charges. Mass number of the atom is 27 and the number of neutrons is 14. What is the number of electrons in the ion?
- (a) 13 (b) 10  
(c) 14 (d) 16

OR

Identify the  $Mg^{2+}$  ion from the figure where, n and p represent the number of neutrons and protons respectively.



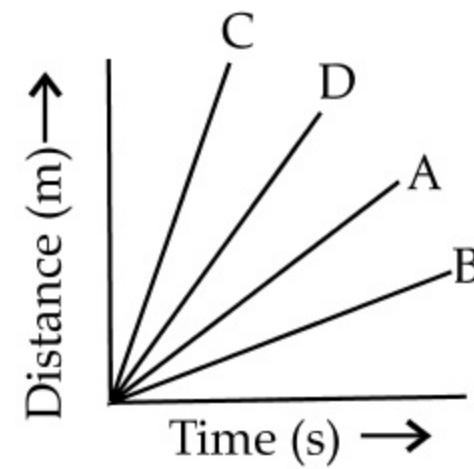
4. The value of acceleration due to gravity
- (a) is same on equator and poles. (b) is least on poles.  
(c) is least on equator. (d) increases from pole to equator.
5. Seema visited a Natural Gas Compressing Unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions.
- (a) Low temperature, low pressure (b) High temperature, low pressure  
(c) Low temperature, high pressure (d) High temperature, high pressure
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6. Intestine absorbs the digested food materials. What types of epithelial cells are responsible for that?
- (a) Stratified squamous epithelium (b) Columnar epithelium  
(c) Spindle fibres (d) Cuboidal epithelium

OR

Survival of plants in terrestrial environment has been made possible by the presence of

- (a) intercalary meristem. (b) conducting tissue.  
(c) apical meristem. (d) parenchymatous tissue.
7. Which of the following statements is not true about an atom?
- (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.
8. Four cars A, B, C and D are moving on a levelled road. Their distance versus time graphs is shown in figure. Choose the correct statement.



- (a) Car A is faster than car D. (b) Car B is the slowest.  
(c) Car D is faster than car C. (d) Car C is the slowest.
9. The unit of work is joule. The other physical quantity that has same unit is
- (a) Power (b) Velocity  
(c) Energy (d) Force
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10. Which disease is not transmitted by mosquitoes?
- (a) Dengue (b) Malaria  
(c) Brain fever or encephalitis (d) Pneumonia
11. Why do liquids have mostly lower density than solids?

OR

Kinetic energy of particles of water in three vessels A, B, C are  $E_A$ ,  $E_B$ , and  $E_C$  respectively and  $E_A > E_B > E_C$ . Arrange the temperatures  $T_A$ ,  $T_B$  and  $T_C$  of water in the three vessels in increasing order.

12. What is an electron? Who discovered it?
13. Why does the sole of the shoe wears out?

OR

Which has highest inertia : solids made of aluminium, steel and wood of same shape and same volume.

14. What are fluids?

15. Give one example each of transverse and longitudinal wave.

OR

If any explosion takes place at the bottom of a lake, what type of shock waves in water will take place?

**DIRECTIONS (Qs. 16 to 20) : In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:**

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).  
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).  
(c) Assertion (A) is true but reason (R) is false.  
(d) Assertion (A) is false but reason (R) is true.
16. **Assertion :** Italian bee is commonly used for honey production.  
**Reason :** Italian bees have high honey collecting capacity, are stingless and breeds very well.
17. **Assertion :** If a balanced force is applied on a wooden block it will move.  
**Reason :** Unbalanced force changes the state of motion or rest while balanced force does not.
18. **Assertion :** Water molecules always contain hydrogen and oxygen in the ratio 1:8.  
**Reason :** Water obeys law of constant proportions irrespective of source and method of preparation.

19. **Assertion** : Thigh muscles can get tired but not heart muscles.  
**Reason** : Muscles of thigh are voluntary while muscles of heart are involuntary muscles.
20. **Assertion** : Biogeochemical cycling means cycling of nutrient in an ecosystem.  
**Reason** : Decomposers play an important role in biogeochemical cycling.

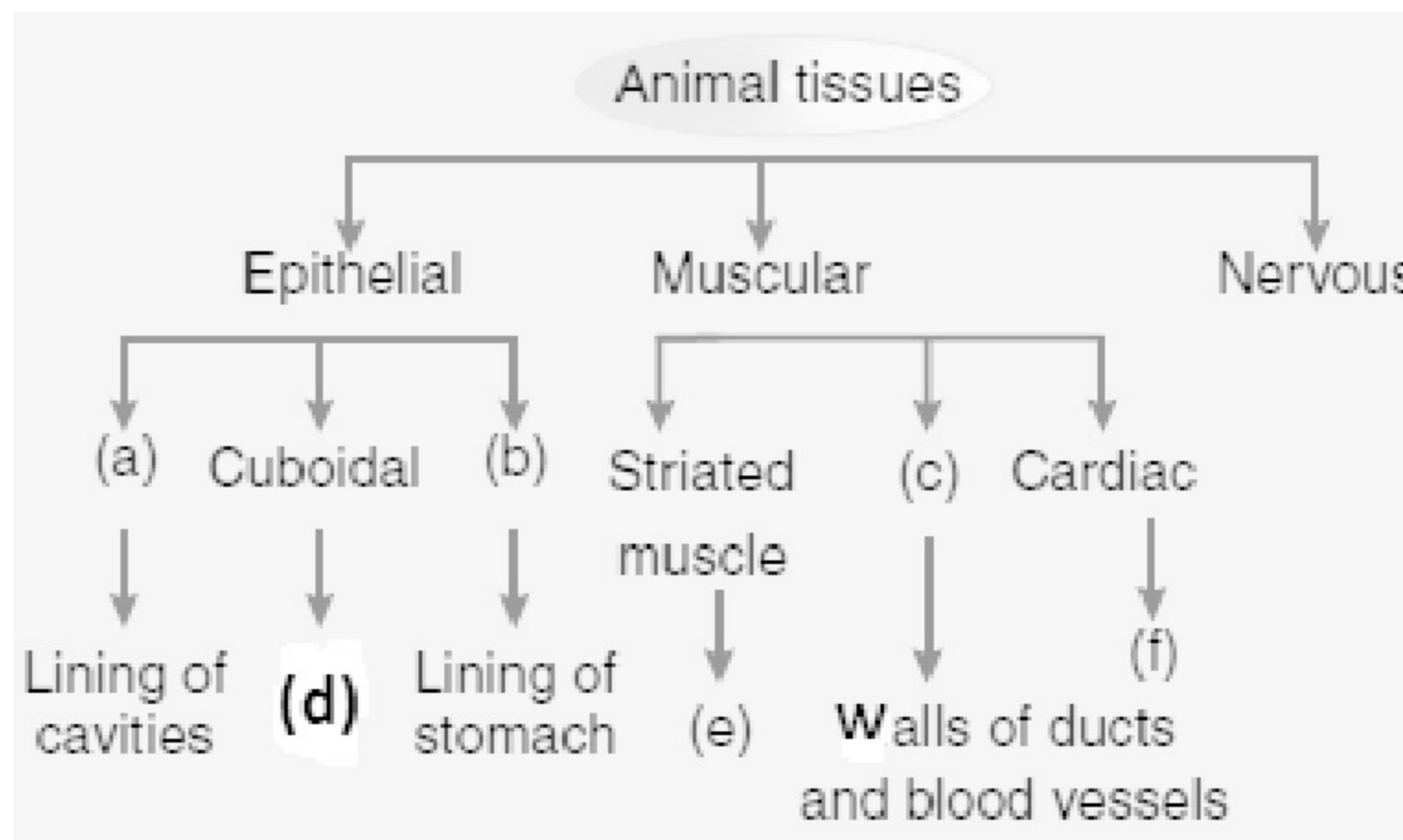
## Section 'B'

21. Mention three practices in which cattle farming is beneficial to mankind.

OR

Explain the ways by which crop-production can be increased.

22. A construction worker's helmet slips and falls when he is 78.4 m above the ground. He hears the sound of the helmet hitting the ground 4.23 seconds after it slipped. Find the speed of sound in air.
23. With the help of a well-labelled diagram, explain how solid ammonium chloride converts directly to gaseous state on heating ?
24. What happens when :  
 (i) Methylene blue stain is added to human cheek cell.  
 (ii) Rheo leaves are boiled in water and a drop of sugar is added to it.  
 (iii) RBCs are kept in concentrated solution.
25. Complete the following flow chart:



26. A force of 200 N acts on a surface of area 10 cm<sup>2</sup>. Calculate thrust and pressure. Calculate the changed pressure if the area of contact increases to 50 cm<sup>2</sup>.
27. (i) A ball is allowed to roll down from an inclined plane. It reaches the foot of the plane and continues to roll on the ground. It stops after travelling some distance. Is this the violation of law of inertia? Give reasons for your answer.  
 (ii) A player lowers his hand while catching a ball. Explain reason behind his action.
28. The description of atomic particles of two elements X and Y is given below :

	X	Y
Protons	8	8
Neutrons	8	9
Electrons	8	8

- (i) What is the atomic number of Y ?  
 (ii) What is the mass number of X ?  
 (iii) What is the relation between X and Y ?  
 (iv) Which element/elements do they represent ?  
 (v) Write the electronic configuration of X ?  
 (vi) Write the cation/anion formed by the element.

29. A ball is dropped from the top of a tower 100 m high and at the same time another ball is projected vertically upwards from the ground with a velocity of 25 m/sec. Calculate where and when the two stones will meet. (Take  $g = 9.8 \text{ ms}^{-2}$ )

OR

What happens to the magnitude of the force of gravitation between two objects if:

- (i) mass of one of the objects is tripled?
  - (ii) distance between the objects is doubled?
  - (iii) mass of both objects is doubled?
30. When is the work done by a force said to be negative? Give one situation in which one of the forces acting on the object is doing positive work and the other is doing negative work.

OR

- (i) Name the type of energy possessed by a freely falling body of mass 'm' at the highest point 'h'.
- (ii) Define the energy.
- (iii) A freely falling object eventually stops on reaching the ground. What happens to its kinetic energy?

## Section 'C'

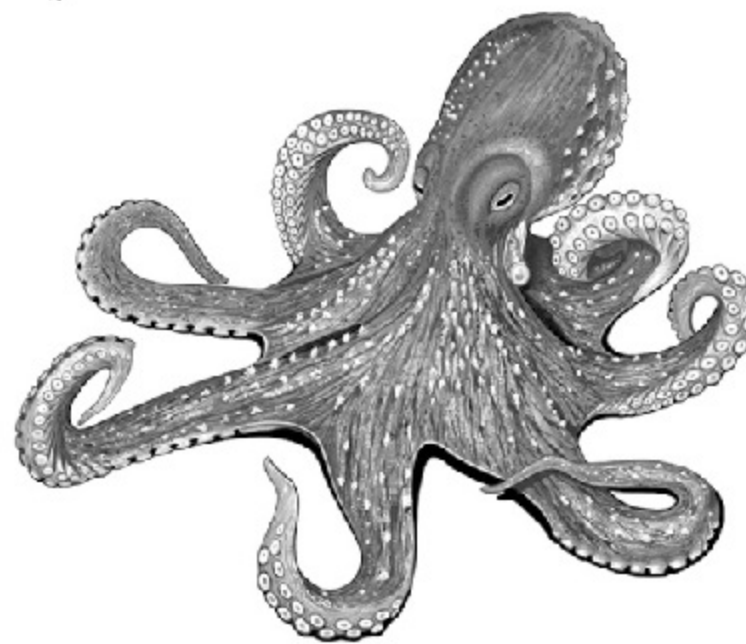
31. Write a note on how forests influence the quality of our air, soil and water resources.

AI 32. Which separation techniques you will apply for the separation of the following mixtures:

- (i) Oil from water
  - (ii) Camphor from sand
  - (iii) Sodium chloride from its solution in water
  - (iv) Metal pieces from engine oil of a car
  - (v) Cream from milk
33. (i) What do the following symbols / formulae stand for :  
(a)  $2\text{O}$  (b)  $\text{O}_2$   
(c)  $\text{O}_3$  (d)  $\text{H}_2\text{O}$  ?
- (ii) Give the chemical formula of the following compounds :  
(a) Potassium carbonate  
(b) Calcium chloride
- (iii) Calculate the formula unit mass of  $\text{Al}_2(\text{SO}_4)_3$ .  
(Given : Atomic mass of Al = 27 u, S = 32 u, O = 16 u)
34. Propose three examples of characteristics used for hierarchical classification. Based on these, develop the definition of characteristics. Why the characteristics of body design used for classification of plants is different from those used for classifying animals ?

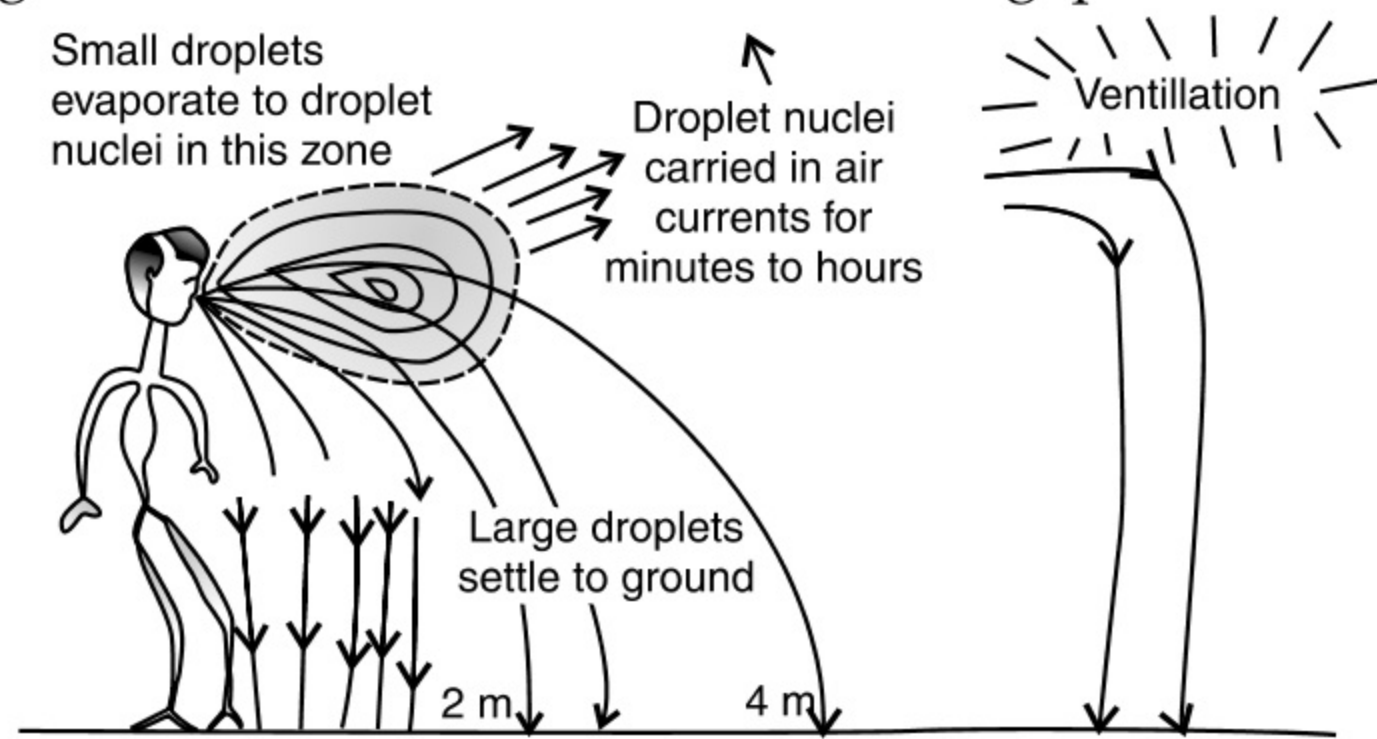
OR

- (i) Identify the organism. Name the phylum to which this organism belongs. Write any two characteristic features of the phylum.



- (ii) Pick up the odd one out and justify your choice by giving reasons : Crocodile, salamander, sparrow, bat.
- (iii) Write the common name for *Ascaris*, *Wuchereria*.

**AI** 35. Study the picture given below and answer the following questions.



- (a) What can you conclude about spread of the disease with respect to the distance from an infected person?
- (b) What change will be observed in the above situation if the infected person is present in a closed room?
- (c) Name two diseases that can be spread through the above means.
- (d) How can the spread of such diseases be controlled?
36. (a) State the relation between distance and time :
- (i) When a body is moving with uniform velocity.
- (ii) When a body is moving with variable velocity.
- AI** (b) How is distance different from displacement ?
- (c) A train is travelling at a speed of 90 km/h. Brakes are applied in the train so as to produce a uniform acceleration of  $0.5 \text{ m/s}^2$ . Find distance covered by train, before it is brought to rest ?

**OR**

- (a) Write three advantages of velocity-time graph.
- (b) A bus starting from rest moves with a uniform acceleration of  $0.1 \text{ m/s}^2$  for 2 minutes. Find the speed acquired, and the distance travelled.