

8. Find out the correct sentence about manure

- (i) Manure contains large quantities of organic matter and small quantities of nutrients.
- (ii) It increases the water holding capacity of sandy soil.
- (iii) It helps in draining out of excess of water from clayey soil.
- (iv) Its excessive use pollutes environment because it is made of animal excretory waste.

(a) (i) and (iii) (b) (i) and (ii) (c) (ii) and (iii) (d) (iii) and (iv)

9. A passenger in a moving train tosses a coin that falls behind him. It means that the motion of the train is

(a) uniform (b) accelerated (c) retarded (d) along circular tracks

10. Which of the following is the SI units of force?

(a) Kgm/s^2 (b) Kgm/s (c) Newton-metre (d) Newton

11. Ribosomes are the sites of

(a) Photosynthesis (b) Respiration (c) Protein synthesis (d) Absorption.

12. 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

13. How many electrons are occupied in the M shell?

(a) 8 (b) 16 (c) 18 (d) 32

14. A water tank filled upto $\frac{2}{3}$ of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would

(a) Move backward (b) Move forward (c) Come to the rest (d) Be unaffected

15. 1 u or 1 amu means

- (a) $\frac{1}{12}$ th mass of C-12 atoms (c) Mass of O-16 atom
- (b) Mass of C-12 atom (d) Mass of Hydrogen molecule

16. The process by which water moves through a semi-permeable membrane from a region of high concentration to a region of lower concentration, thereby equalizing water concentration is called:

(a) Evaporation (b) Diffusion (c) Osmosis (d) All of the above

Directions Q17-Q20

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.

17. **Assertion:** A solution of table salt in a glass of water is homogeneous.

Reason: A solution having different composition throughout is homogeneous

18. **Assertion:** Sound is a form of energy which produces a sensation of hearing in our ears.

Reason: When you clap, a sound is produced.

19. **Assertion:** The flash of lightening is seen before the sound of thunder is heard.

Reason: Speed of sound is greater than speed of light.

20. **Assertion:** When a beam of light is passed through a colloidal solution placed in a dark

place the path of the beam becomes visible.

Reason: Light gets scattered by the colloidal particles

SECTION: B (each carries two marks)

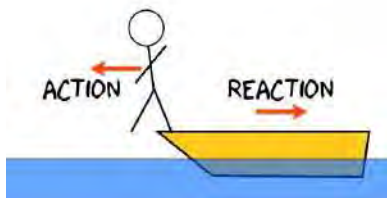
21. Give any two differences between Speed and Velocity.

22. Write down the formulae of

(i) Sodium oxide,

(ii) Aluminium chloride

23. Explain Newton's law of motion which is proved by this picture.



24. What do you mean by free fall?

25. Give reasons for the following observations.

(a) Naphthalene balls disappear with time without leaving any solid.

(b) We can get the smell of perfume sitting several meters away.

26. Draw structure of Animal cell.

SECTION: C (Each carries three marks)

27. Define Crop Rotation. What are the advantages of crop rotation?

28. Name the organelles which show the analogy written as under

(a) Transporting channels of the cell—

(b) Power house of the cell—

(c) Packaging and dispatching unit of the cell—

(d) Digestive bag of the cell——

(e) Kitchen of the cell——

(f) Control room of the cell

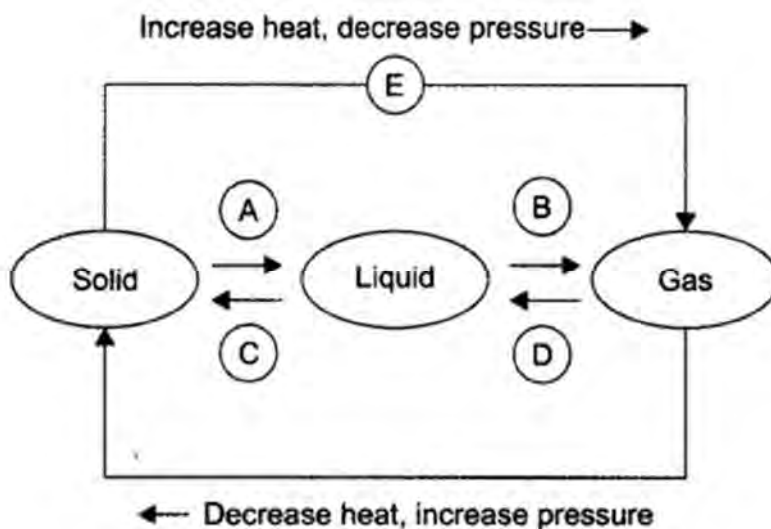
29. What is sound, and how is it produced? What is the audible range of the average human ear?

30. A bus decreases its speed from 80 km h^{-1} to 60 km h^{-1} in 5 s. Find the acceleration of the bus.

31. Differentiate between meristematic tissue and permanent tissue

32. Calculate the molecular masses of H_2 , O_2 , Cl_2 , CO_2 , CH_4 , C_2H_6

33. Name A, B, C, D, E and F in the following diagram showing change in its state

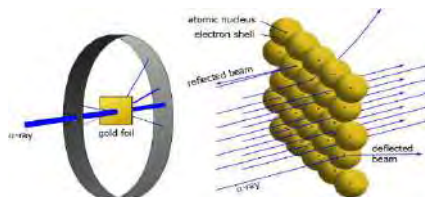


SECTION: D (each carries five marks)

34. What is Tissue. Mention the function of parenchyma, collenchyma and sclerenchyma.

35. Explain power. What is 1 watt of power? Calculate the power if the lamp consumes 1000 J of electrical energy in 10 s.

36.



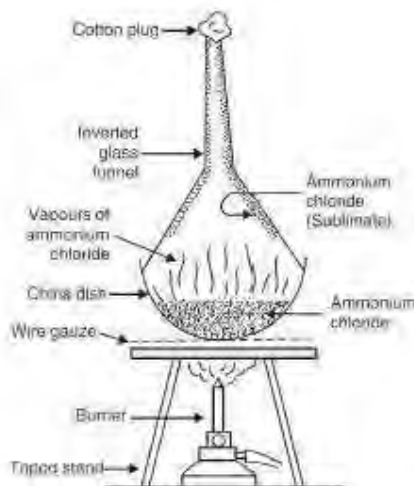
Observe the above picture and name the Rutherford's experiment used for the discovery of Nucleus. Write two conclusions of his experiment. List down limitations of his model.

SECTION: E (Each Carries Four Marks)

CASE STUDY BASED QUESTIONS

37. We take some ammonium chloride in a china dish and place the china dish on a tripod stand (see Figure). The china dish is covered with an inverted glass funnel. A loose cotton plug is put in the upper, open end of the funnel to prevent the ammonium chloride vapours from escaping into the atmosphere. The china dish is heated by using a burner. On heating, ammonium chloride changes into white vapours. These vapours rise up and get converted

into solid ammonium chloride on coming in contact with the cold, inner walls of the funnel (see Figure). In this way, ammonium chloride collects on the inner sides of the funnel in the form of a sublimate and can be removed.



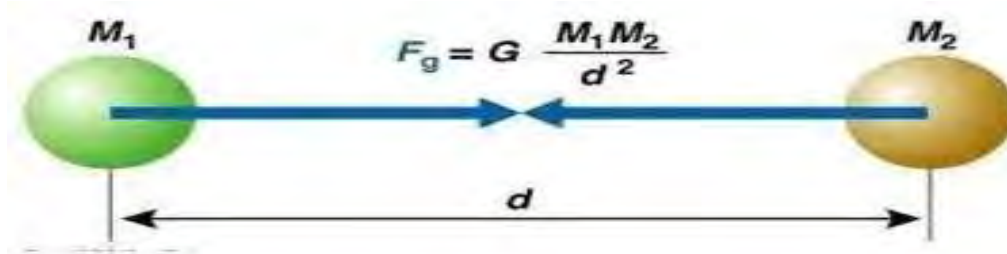
- (i) What name is given to the phenomenon which takes place?
 (a) condensation (b) evaporation (c) sublimation (d) vaporisation
- (ii) One of the following does not undergo sublimation. This one is :
 (a) Iodine (b) Sodium Chloride (c) Ammonium Chloride (d) Camphor
- (iii) The conversion of a solid into vapours without passing through the liquid state is called:
 (a) vaporisation (b) fusion (c) sublimation (d) freezing
- (iv) During summer days, water kept in an earthen pot (pitcher) becomes cool because of the phenomenon of :
 (a) diffusion (b) transpiration (c) osmosis (d) evaporation

38. All living Organisms are made up of cells and these cells perform all the functions essential for the survival of the Organism e.g. Respiration, digestion, excretion etc. In Unicellular organisms, a single cell carries out all these functions and in multicellular organisms different group of cells carry out different functions. Cells were first discovered by Robert Hooke in 1665. He observed the cells in a cork slice with the help of a primitive microscope. Leeuwenhoek (1674), with the improved microscope, discovered the free living cells in pond water for the first time. It was Robert Brown in 1831 who discovered the nucleus in the cell. Purkinje in 1839 coined the term 'protoplasm' for the fluid substance of the cell.

- (i) Who discovered the cell?
 (a) Robert Hooke (b) Leeuwenhoek (c) Robert Brown (d) T. Schwann
- (2) Who discovered the nucleus in the cell?
 (a) Robert Hooke (b) Leeuwenhoek (c) Robert Brown (d) T. Schwann
- (3) Who coined the term 'Protoplasm'?
 (a) Robert Hooke (b) Leeuwenhoek (c) Robert Brown (d) Purkinje
- (4) What is protoplasm?

- (a) Unit of life
- (b) Cell organelle
- (c) Fluid substance of the cell.
- (d) Cytoplasm

39. Every object in the universe attracts every other object with a force which is proportional to the product of their masses ($m_1 \cdot m_2$) and inversely proportional to the square of the distance (d^2) between them. The force is along the line joining the centers of two objects.



Mathematically,

$$F = G \frac{M_1 \cdot M_2}{d^2}$$

Where,

M_1 = mass of one object.

M_2 = mass of another object

d = distance between two objects

G = universal gravitational constant

The value of G was found out by Henry Cavendish (1731 – 1810) by using a sensitive balance.

The accepted value of G is $6.673 \cdot 10^{-11} \text{ N-m}^2/\text{kg}^2$. Answer the following questions from above case.

- (i) Gravitational force does not depend on
 - (a) Masses of objects
 - (b) Separation between objects
 - (c) Charges on objects
 - (d) None of these
- (ii) Force of gravitation varies with masses of object as
 - (a) Product of masses
 - (b) Sum of masses
 - (c) Difference of masses
 - (d) None of these
- (iii) When mass of one body is doubled then force of gravitation will become
 - (a) Force will remain same
 - (b) Force will become double
 - (c) Force will become halved
 - (d) None of these
- (iv) What is universal gravitational constant?