

# Science for Class 9

## 1. Matter in Our Surroundings

Q 1 What is the normal room temperature?

Mark (1)

Q 2 Are the melting point of the solid state and the freezing point of the liquid state of a substance different.

Mark (1)

Q 3 A certain substance 'A' cannot be compressed but takes up the shape of any container in which it is placed. What is the physical state of 'A'?

Mark (1)

Q 4 A rubber band changes its shape when stretched. Can it be regarded as solid?

Mark (1)

Q 5 What are volatile liquids?

Mark (1)

Q 6 Which scale of measuring the temperature is the best?

Mark (1)

Q 7 Define diffusion.

Mark (1)

Q 8 Is matter continuous or particulate?

Mark (1)

Q 9 What are the factors on which evaporation depends?

Mark (1)

Q 10 Define humidity.

Mark (1)

Q 11 Define evaporation.

Mark (1)

Q 12 Why do the states of matter differ?

Mark (1)

Q 13 Define melting point.

Mark (1)

Q 14 Write the full form of L.P.G. & C.N.G.

Mark (1)

Q 15 In spite of being solid, a sponge is compressible. Comment.

Mark (1)

Q 16 Define matter.

Mark (1)

Q 17 What produces more severe burns, boiling water or steam?

Mark (1)

Q 18 Arrange the following substances in increasing order of force of attraction between the particles - water, sugar and oxygen.

Mark (1)

Q 19 Suggest a method to liquefy atmospheric gases.

Mark (1)

Q 20 What is sublimation?

Mark (1)

Q 21 What are the factors that determine the state of a substance?

Marks (2)

Q 22 Why does our palm feel cold when we put some acetone, petrol or perfume on it?

Marks (2)

Q 23 Liquids generally have lower density as compared to solids. But ice floats on water. Why?

Marks (2)

Q 24 Why do we sweat on a humid day?

Marks (2)

Q 25 Why do solids generally lack the property of diffusion?

Marks (2)

Q 26 How will you demonstrate that air contains water vapours?

Marks (2)

Q 27 We use the terms gas and vapours both to represent the gaseous state of a substance. Are the two terms same or there is some difference in them?

Marks (2)

Q 28 Can matter change its state? State the conditions under which it changes.

Marks (2)

Q 29 Why do we see water droplets on the outer surface of a glass containing ice-cold water?

Marks (2)

Q 30 Explain why there is no rise in temperature of water when it starts boiling although it is still being heated.

Marks (2)

Q 31 What is dry ice? Why it is known so?

Marks (2)

Q 32 What are the different states of matter? Why do matter exist in these different states?

Marks (2)

Q 33 Why is ice at 273k is more effective in cooling than water at same temperature?

Marks (2)

Q 34 Give reasons.

a. Naphthalene balls disappear with time without leaving any residue.

b. We can get the smell of perfume sitting several metres away.

Marks (2)

Q 35 What is the physical state of water at

a)30°C?

b)0°C?

c)100°C?

Marks (2)

Q 36 Convert the following temperatures into the Kelvin scale.

(a) 25°C

(b) 373°C

Marks (2)

Q 37 What type of clothes should we wear in summer?

Marks (2)

Q 38 How does the water kept in an earthen pot (matka) become cool during summer?

Marks (2)

Q 39 Why are we able to sip hot tea or milk faster from a saucer rather than a cup?

Marks (2)

Q 40 Why does a desert cooler cool better on a hot dry day?

Marks (2)

Q 41 For any substance, why does the temperature remain constant during its phase change?

Marks (2)

Q 42 What is the physical state of water at

- (a)  $25^{\circ}\text{C}$  ?
- (b)  $100^{\circ}\text{C}$  ?

Marks (2)

Q 43 Arrange the following in order of increasing density.  
exhaust from chimneys, Air, cotton, Iron, water, honey, chalk.

Marks (2)

Q 44 Give reasons for -

The smell of hot sizzling food reaches you several meters away, but to get the smell from cold food you have to go close.

Marks (2)

Q 45 How does evaporation cause cooling?

Marks (3)

Q 46 Explain giving an activity that the liquids differ in their relative diffusion rates.

Marks (3)

Q 47 Differentiate between evaporation & boiling.

Marks (3)

Q 48 Give two reasons to justify.

- (a) Water at room temperature is a liquid
- (b) An iron almirah is a solid at room temperature.

Marks (3)

Q 49 Give reasons-

- (A) A gas fills completely the vessel in which it is kept.
- (B) A gas exerts pressure on the walls of the container.
- (C) A wooden table should be called a solid.

Marks (3)

Q 50 What are the characteristics of the particles of matter?

Marks (3)

Q 51 A diver is able to cut through water in a swimming pool. Which property of matter does this observation prove?

Marks (3)

Q 52 What will happen if we put an animal cell or a plant cell into a solution of sugar or salt in water?

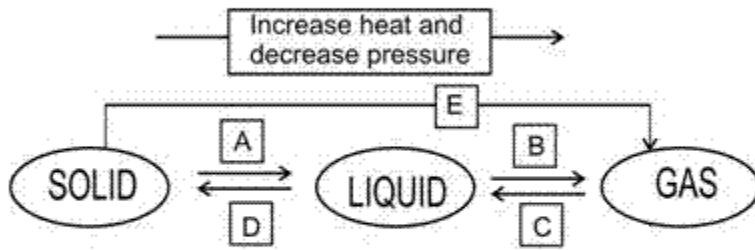
Marks (5)

Q 53 Define the following terms.

Fusion, latent heat of fusion, boiling point, latent heat of vaporization and sublimation.

Marks (5)

Q 54 Name A, B, C, D & E in the following diagram.



Marks (5)

Q 55 (a) When common salt is added to water, it dissolves. Name the property which is exhibited by this activity.

(b) The melting points of solids (A), (B), (C) and (D) are  $50^{\circ}\text{C}$ ,  $250^{\circ}\text{C}$ ,  $110^{\circ}\text{C}$  and  $160^{\circ}\text{C}$  respectively. Name the solid which has strongest inter particle forces of attraction.

(c) Suppose you are going out on a hot summer day. Should you wear a cotton T-shirt or nylon T-shirt? Give reason also.

(d) Which is more volatile: Liquid A (Boiling point  $85^{\circ}\text{C}$ ) or water (Boiling point  $100^{\circ}\text{C}$ )?

Marks (5)

Q 56 (a) A diver can cut through water while swimming. Name the property of matter shown by this activity.

(b) We sprinkle water on rooftop in summer. Why?

(c) Write three methods that can be used to dry up a wet dress quickly.

Marks (5)

Q 57 (a) We can smell an incense stick lightened at the other end of the room. Name three properties of matter responsible for this.

(b) When you heat water, you see that the particles of water starts moving and their motion increases on increasing the temperature. Why?

(c) We observe water drops on the outer surface of a glass tumbler filled with ice- cold water. Why?

Marks (5)

Q 58 (a) If we break a piece of chalk, a wooden block, and an iron nail, we will observe that it is very difficult to break an iron nail, wooden block requires lesser force, while chalk can be broken easily. What can be concluded from these observations?

(b) Though sponges can be compressed yet they are considered as solid. Give reasons.

(c) Give an example of diffusion of solid in liquid.

Marks (5)

- Q 59 (a) Can we consider water a fluid? Give suitable explanation also.  
(b) Which one out of water and wood can be compressed easily and why?  
(c) Give an example of diffusion of liquid in liquid.

Marks (5)

- Q 60 (a) Name the process in which there is movement of particles from the region of their high concentration to the region of low concentration.  
(b) The smell of which of the following can be detected quickly and why?  
(i) Spicy hot food cooking in kitchen.  
(ii) Ice cream kept at room temperature.  
(c) Write two factors that affect the rate of diffusion.

Marks (5)

- Q 61 (a) Why is it possible to compress oxygen?  
(b) Why gases have fluidity?  
(c) Density of gases is low. Give reason.  
(d) You have copper, water and oxygen. Which will have highest density and why?  
(e) Name two fuels which are based on the property of compressibility of gases?

Marks (5)

- Q 62 (a) Which out of wood, sugar, water and hydrogen will exert highest pressure on the walls of container?  
(b) Freezing point of water is  $0^{\circ}\text{C}$ , what will be its melting point?  
(c) What do you understand by liquefaction?  
(d) Why clothes dry up quickly on a windy day?

Marks (5)

#### Most Important Questions

- Q 1 Which of the following is not matter  
(a) Plants (b) smell of food (c) Stars (d) Particles of sand

- Q 2 From the given list prepare two separate lists one comprising of matter and other comprising of things which are not categorised as matter

Iodine, heat, bunch of rose, sound, electricity, rock, feeling of happiness, river Ganga

- Q 3 Name the *Panch Tatva* as described by ancient Indian philosophers.

- Q 4 Why cold is not a matter but cold drink is?

- Q 5 What property of gases makes them used as convenient domestic fuel?

- Q 6 Which of the following will have strongest forces of attraction between its particles?  
Air, Water, Oxygen, Iron

- Q 7 When we add few crystals of copper sulphate to water, after sometime the solution turns blue. Name the process involved in it.

Q 8 Which of the following has fixed shape and fixed volume both  
(a) 1kg Milk (b) 1kg of Copper (c) 1kg Nitrogen (d) 1 kg Water

Q 9 Which of the following objects can be most compressed and why?

Coal powder, Chlorine, Ice cream, Milk

Q 10 Particles of copper does not diffuse. Why?

Q 11 Convert the following temperature to Kelvin

(i) 57°C (ii) 13°C (iii) 100 °C

Q 12 Convert the following temperature to degree Celsius

(i) 773K (ii) 333K

Q 13 A substance has definite volume but its shape is not definite. State if the substance is solid, liquid or gas?

Q 14 In which of the following rate of diffusion is fastest

(i) Oxygen is passed in water. (ii) Water is added to acetic acid  
(iii) Oxygen is passed in hydrogen (iv) Air is passed in molten iron

Q 15 Name a gas which is used as domestic fuel.

Q 16 Write the name of process when following change takes place

(i) Molten iron is allowed to cool.  
(ii) Ethyl alcohol is heated over 76 °C.  
(iii) Wet clothes are spread out

Q 17 Melting point of a solid (X) is 300<sup>0</sup> C and that of other solid (B) is 550<sup>0</sup> C. Which of them is expected to have stronger forces of attraction between its constituent particles?

Q 18 Why does the temperature in thermometer not rise till acetone is completely changed into vapours?

Q 19 Why latent heat is given this name?

Q 20 Water kept in earthen pots become cool in summer. Explain.

Q 21 Explain why camphor disappears without leaving any residue?

Q 22 Which of the following causes more severe burns caused by steam or boiling water?

Q 23 Bottle of nail polish remover must be closed tightly after use. Why?

Q 24 Boiling point of a liquid is 443 K. Find its condensation point.

Q 25 Explain why ice is more effective in cooling than water at the same temperature.

Q 26 Fusion is the process of conversion of

(a) liquid into gas (b) solid into gas (c) solid into liquid (d) liquid into solid

Q 27 Which of the following has more amount of energy and why

(i) Water at  $0^{\circ}\text{C}$  (ii) Ice at  $0^{\circ}\text{C}$

Q 28 Boiling point is the temperature at which

(a) vapour pressure < atmospheric pressure (b) vapour pressure = atmospheric pressure (c) (a) vapour pressure > atmospheric pressure

(d) (a) vapour pressure = 2 atmospheric pressure

Q 29 On hot humid day we feel comfortable while sitting under fan. Why?

Q 30 Suggest a method to liquefy oxygen



## 2. Is Matter around Us Pure

Q 1 Name the process which can be used to recover sugar from an aqueous sugar solution.

Mark (1)

Q 2 What happens when a saturated solution is heated ?

Mark (1)

Q 3 Name the process you would use to separate a mixture of water and alcohol.

Mark (1)

Q 4 Give an example of an aqueous solution in which gas is dissolved.

Mark (1)

Q 5 What is the cause of Tyndall effect as shown by colloid?

Mark (1)

Q 6 How would you confirm that a colourless liquid given to you is pure water?

Mark (1)

Q 7 Give two examples of colloidal solution.

Mark (1)

Q 8 Name the technique to separate -

(a) Salt from sea water

(b) Butter from curd

Mark (1)

Q 9 What is crystallization ?

Mark (1)

Q 10 What is a saturated solution ?

Mark (1)

Q 11 What is solution?

Mark (1)

Q 12 Which process would you use to separate colours in a dye ? Define the process.

Marks (2)

Q 13 Fog and cloud are both colloidal in nature . How do they differ ?

Marks (2)

Q 14 A compound is regarded as a pure substance but a mixture is not. Give reasons.

Marks (2)

Q 15 What is sublimation ? Write two examples of sublimating substances.  
Marks (2)

Q 16 What do you understand by filtration ? Give one example also.  
Marks (2)

Q 17 Define colloid. Give one example also.  
Marks (2)

Q 18 What is meant by a suspension ? Write one example also.  
Marks (2)

Q 19 Define solution. Name its constituents also.  
Marks (2)

Q 20 What is meant by a mixture ? Write an example also.  
Marks (2)

Q 21 What do you understand by a pure substance? Give one example also.  
Marks (2)

Q 22 What are suspensions?  
Marks (2)

Q 23 Define Alloys. Give one example also.  
Marks (2)

Q 24 (i) A solution has been prepared by dissolving 5 g of urea in 95 g of water. What is the mass percent of urea in the solution ?

(ii) Will blood show Tyndall effect?

Marks (3)

Q 25 Classify the following into elements , compounds and mixtures-

(a) Soil (b) Magnesium (c) Salt solution (d) carbon dioxide (e) Gold (f) Methane

Marks (3)

Q 26 How will you separate iron filings and ammonium chloride from the mixture of both with sand?  
Marks (3)

Q 27 How will you separate a mixture of mercury, water and benzene ?  
Marks (3)

Q 28 Write three differences between physical changes and chemical changes.

Marks (3)

Q 29 Differentiate between homogeneous and heterogeneous mixtures.

Marks (3)

Q 30 What are the two types of pure substances ? Explain.

Marks (3)

Q 31 Write three properties of a colloid.

Marks (3)

Q 32 (i) A solution contains 20 g of common salt in 160 g of water. Calculate the concentration in terms of mass percentage of the solution.

(ii) Can we separate a mixture of ammonium chloride and naphthalene by sublimation? Give reasons also.

Marks (3)

Q 33 Give three examples of solutions and mention the solute and solvent present in them.

Marks (3)

Q 34 (i) A solution contains 40 g of sugar dissolved in 360 g of water. Calculate the concentration of this solution.

(ii) Name the technique used to separate cream from milk.

Marks (3)

Q 35 Write 5 differences between compound and mixture.

Marks (5)

Q 36 Write 5 properties of a true solution.

Marks (5)

Q 37 (i) To make a saturated solution, 42g of sodium chloride is dissolved in 100 g of water at 293K. Find its concentration at this temperature.

(ii) Name a domestic fuel which is (a) homogeneous (b) heterogeneous.

Marks (5)

Q 38 Write 5 differences between a mixture and a compound.

Marks (5)

Q 39 (a) Classify silver as metal or non-metal and write its four properties.

(b) If you have an iron rod and a plastic rod, which of them will produce sound when hit with an object?

(c) Differentiate copper and oxygen on the basis of their volume.

(d) Name the metal which is liquid at room temperature.

Marks (5)

Q 40 (a) Classify sulphur as metal or non-metal and write four of its properties.

(b) Name –

(i) a non-metal which is a good conductor of electricity

(ii) a non-metal which is liquid at room temperature.

(iii) Name a non-metal that has lustre.

Marks (5)

Q 41 (a) Classify a mixture of sugar in water as solution, colloid or suspension and write its six properties.

(b) Give one example each of solid solution and gas solution.

(c) Write the physical state of solute and solvent present in amalgam.

Marks (5)

Q 42 (a) Is milk a pure substance? Give reasons also.

(b) Classify 24 carat gold as pure or impure substance. Give reasons also.

(c) Name two metalloids.

(d) Why carbon dioxide is classified as compound not as mixture?

(e) Write one example each of homogeneous mixture and heterogeneous mixture.

Marks (5)

Q 43 (a) Give two reasons for why it is necessary to separate components of mixture of rice and small stones.

(b) Name the techniques used for:

(i) squeezing out water from clothes in washing machine.

(ii) separating components of ink.

(c) Kerosene oil and water do not mix with each other. What is the special name used to describe such liquids?

(d) You have a mixture of ammonium chloride and sodium chloride. Name the method you will use to separate them and why?

Marks (5)

Q 44 (a) How will you separate the components of ink using chromatography? Explain with the help of a labelled diagram.

(b) What is the function of glass beads present in fractionating column?

(c) Which method out of evaporation and crystallisation is a better technique to separate sugar from sugar solution? Give reasons also.

Marks (5)

#### Most Important Questions

Q 1 Gold can be drawn in wire. Name the property.

Q 2 Between sulphur and copper which one you will use for making wire.

Q 3 Silver is best conductor of electricity still the electrical wires are made of copper and aluminium. Why?

Q 4 (i) Name a soft metal.

(ii) Name the element present in diamond.

(iii) Name a non-metal having shining surface.

(iv) Name an element used as semi conductor

Q 5 Why metalloids are used as semiconductors?

Q 6 Why metals are used in making instruments like bells, tanpura and violin?

Q 7 Non-metals are bad conductors of electricity. Name a non metal which is conductor of electricity and is used in making electrodes.

Q 8 Is diamond element or compound? Write its composition.

Q 9 Non- metals are usually soft. Do you know any hard non-metal? If yes ,name it.

Q 10 From the following list make two separate lists one for physical changes and other for chemical changes.  
baking of bread, switching of electric bulb, curdling of milk, dissolving sodium chloride in water, photosynthesis, rusting of iron, evaporation of water, formation of dew, sublimation of camphor, burning of charcoal or LPG, clotting of blood, crystallization of sugar, ripening of fruit, cooking of vegetables, melting of wax,

Q 11 Why water is a compound not a mixture?

Q 12 Which of the following will show properties of its constituents?

Methane or soil

Q 13 Name solute in brass

Q 14 Particle size of a substance was 50 nm. Is it solution or colloid or suspension

Q 15 A solution is prepared by dissolving 12g of sodium chloride in 150 g of solution. Calculate the mass percentage of solution.

Q 16 The properties of Solution, colloid and suspension are different from each other. Why?

Q 17 Name the solvent present on tincture of iodine.

Q 18 sample of vinegar has 40 gram of acetic acid in 140 ml of water. Calculate mass by volume percentage of the solution.

Q 19 Air is mixture of many gases. Is there any gas I it which acts as solvent? If yes name it and give reasons to support your answer.

Q 20 Write one example each of the following

- (i) Aerosol
- (ii) Emulsion
- (iii) Foam
- (iv) Sol
- (v) Gel

- Q 21 What is toned milk? Name the process and apparatus used to prepare toned milk in dairy.
- Q 22 How will you separate the mixture of pebbles and bits of papers.
- Q 23 Describe how will you separate the mixture of sand and sugar.
- Q 24 Which of the following mixtures cannot be separated by sublimation?  
(a) Mixture of ammonium chloride and sodium chloride  
(b) Mixture of sugar and iodine  
(c) Mixture of sodium chloride and anthracene  
(d) Mixture of ammonium chloride and benzoic acid.
- Q 25 Write the name of technique used to separate the mixture of engine oil and small pieces of metal.
- Q 26 What is the principle of centrifugation?
- Q 27 Name the process used to prepare the crystals of pure copper sulphate. Give reasons also.
- Q 28 Name the process used to separate different gases from air.
- Q 29 Mud is separated from muddy water by adding a chemical. Name it.
- Q 30 There are many methods of separation of components of mixture. How will you decide which is the best method for separating constituents of given mixture?
- Q 31 How will you separate the constituents of mixture of water, edible oil, and common salt
- Q 32 Separate the constituents of mixture comprising of chalk powder, ammonium chloride and iron pieces.
- Q 33 A liquid mixture has two liquids A and B. The boiling point of liquid A is  $56^{\circ}\text{C}$  and that of liquid B is  $70^{\circ}\text{C}$ . Name the process by which these liquids can be separated.
- Q 34 Why crystallization is better technique than evaporation
- Q 35 Name the processes used to make river water fit for drinking

### 3. Atoms and Molecules

Q 1 144 grams of pure water is decomposed by passing electricity. 16 grams of hydrogen and 128 grams of oxygen are obtained. Which chemical law is illustrated by this statement?

Mark (1)

Q 2 What do you mean by Molar Mass ?

Mark (1)

Q 3 What is atomic mass unit ?

Mark (1)

Q 4 What are molecules?

Mark (1)

Q 5 What name is given to the number  $6.023 \times 10^{23}$ ?

Mark (1)

Q 6 Name the building blocks of matter.

Mark (1)

Q 7 How many metres are there in 1 nanometer (nm)?

Mark (1)

Q 8 Define atomicity.

Mark (1)

Q 9 Write the chemical formula of glucose.

Mark (1)

Q 10 Which subatomic particle was not present in Thomson's model of the atom?

Mark (1)

Q 11 Write the symbol of element lead and iron.

Mark (1)

Q 12 Write down the formulae of aluminium sulphate and ethanol.

Marks (2)

Q 13 What is the atomicity of –

(a) Ozone      (b) Nitrogen

(c) Neon      (d) Sulphur

Marks (2)

Q 14 Write the symbols of the following elements :

- a. Sodium
- b. Calcium
- c. Gold
- d. Iron

Marks (2)

Q 15 What weight (in grams) is represented by (a) 2 moles of  $\text{CO}_2$  (b) 5 moles of  $\text{NH}_3$ .

Marks (2)

Q 16 Define law of conservation of mass.

Marks (2)

Q 17 What is an atom ?

Marks (2)

Q 18 How many moles are there in 1 litre of water?

Marks (2)

Q 19 Write the chemical symbols of –

- (a) Silver
- (b) Potassium
- (c) Tin
- (d) Mercury

Marks (2)

Q 20 Write two differences between an atom and its ion.

Marks (2)

Q 21 What percentage of nitrogen is present in aluminium nitride? (Al = 27, N = 14).

Marks (2)

Q 22 Calculate the number of moles for the following:

- (a)  $12.046 \times 10^{23}$  number of He atoms
- (b) 56g of He

Marks (2)

Q 23 Write the formula of the following compound and name the elements present in them.

- (a) Ammonia
- (b) Sulphur dioxide
- (c) Ethanol
- (d) Methane

Marks (2)

Q 24 What do we call those species which have-

- (a) less electrons than the normal atoms.
- (b) more electrons than the normal atoms.

Marks (2)



Q 25 What is the mass of 5 moles of aluminium atoms? (Atomic mass of Al = 27 u)  
Marks (2)

Q 26 How many times is a proton heavier than an electron? Write the absolute mass of a proton.  
Marks (2)

Q 27 Which of the following are isotopes and which are isobars?  
Calcium, Protium, Argon, Deuterium  
Marks (2)

Q 28 Calculate the mass of 0.8 mole of NaCl.  
(Atomic masses : Na = 23u; Cl = 35.5 u)  
Marks (2)

Q 29 If one mole of oxygen atom weighs 16 grams, then what will be the mass (in grams) of 1 atom of oxygen?  
Marks (2)

Q 30 Write the chemical formula of:  
(i) Nitrogen oxide  
(ii) Barium nitride

Marks (2)

Q 31 (a) Calculate the molecular masses of  
(i)  $\text{H}_3\text{PO}_4$   
(ii)  $\text{H}_2\text{O}_2$   
(Atomic masses: H=1, O=16, P=31)

Marks (2)

Q 32 Write the name of four elements which show variable valencies. Also write their valencies.  
Marks (2)

Q 33 Calculate the mass of  $6.022 \times 10^{24}$  atoms of carbon.  
Marks (2)

Q 34 Calculate the mass of 1 molecule of Nitrogen. (Atomic mass of Nitrogen = 14)  
Marks (2)

Q 35 Calculate the number of molecules present in a drop of water weighing 0.75 g. (H = 1, O = 16).  
Marks (3)

Q 36 Write the formula of :

(i) Ammonium sulphate

(ii) Magnesium nitrate

(iii) Aluminium bromide

Marks (3)

Q 37 What do you understand by Formula Unit Mass? Calculate the formula unit masses of  $K_2CO_3$  and  $ZnO$ . (Atomic masses of  $Zn = 65u$ ,  $K=39u$ ,  $C=12u$ )

Marks (3)

Q 38 An element X has a valency of 4

(a) What will be the formula of its chloride ?

(b) What will be the formula of its sulphide ?

(c) What will be the formula of its bromide?

Marks (3)

Q 39 Calculate the mass of  $3.011 \times 10^{24}$  molecules of nitrogen gas. (Atomic mass of  $N=14 u$ )

Marks (3)

Q 40 Distinguish between the molecule of an element and the molecule of a compound with the help of suitable example.

Marks (3)

Q 41 How many grams of hydrogen gas contain the same number of molecules as 22 grams of carbon dioxide gas?

Marks (3)

Q 42 What the following abbreviations stands for.

(a) C

(b) 2H

(c)  $N_2$

(d)  $3N_2$

(e)  $O_3$

(f)  $O^{2-}$

Marks (3)

Q 43 Write the name of the following compounds:

(a)  $Ca_3(PO_4)_2$

(b)  $NaHCO_3$

(c)  $(NH_4)_2SO_4$

(d)  $MgCO_3$

(e)  $FeSO_4$

(f)  $AlCl_3$

Marks (3)

Q 44 The mass of an atom of element (Y) is  $5.30 \times 10^{-23}g$ .

(i) Calculate its atomic mass.

(ii) Name this element.

Marks (3)

Q 45 Calculate the number of particles in each of the following:

(i) 92g of Na atoms

(ii) 7g of  $N_2$  molecules

(iii) 0.1 mole of oxygen atoms

Marks (3)

Q 46 Which of the following weighs the most?

(i) 32g of oxygen

(ii) 10g atoms of hydrogen

(iii) 0.5 of iron

(iv)  $6.022 \times 10^{22}$  atoms of C

(Atomic mass:  $O=16$ ,  $N=14$ ,  $Fe=56$ ,  $C=12$ )

Marks (3)

Q 47 Calculate the number of atoms of each type in 2.65 g of  $\text{Na}_2\text{CO}_3$ .  
Marks (5)

Q 48 If 2 g of water contains z molecules, what will be number of molecules in 4 g of carbon dioxide?  
Marks (5)

Q 49 (a) In 0.25 mol of  $\text{P}_4$ , calculate

(i) The number of  $\text{P}_4$  molecules

(ii) The number of P atoms

(iii) The number of moles of P atoms

(b) Calculate the number of moles of magnesium in its 200 gram. (Atomic mass of Mg = 24 u)

(c) Calculate the number of molecules present in 36 grams of water.

Marks (5)

Q 50 Calculate the number of chromium atom in 1.47 g of potassium dichromate ( $\text{K}_2\text{Cr}_2\text{O}_7$ ) [Atomic mass: K=39, Cr=52, O=16].  
Marks (5)

Q 51 Write any four significances of symbol. Give one example also.  
Marks (5)

Q 52 Give the significance of the formula  $\text{CO}_2$ .  
Marks (5)

Q 53 (i) Write the atomicity of the following:  
(a) Ozone (b) Chlorine  
(c) Helium (d) Sulphur  
(e) Oxygen (f) Phosphorous

(ii) Give one word answer

The Latin name of iron from which its symbol is derived.  
An atom or group of atom having positive charge.

Marks (5)

#### Most Important Questions

Q 1 State main points of Dalton atomic theory.

Q 2 State the law of constant proportion.

Q 3 state the law of conservation of mass

Q 4 If 90g of pure water is obtained through 80g of oxygen and Xg of hydrogen.

- Find the value of X.
- Which chemical law is illustrated by this statement?

Q 5 Calculate the molecular mass of the following:

- $\text{H}_2\text{O}$
- HCl
- $\text{H}_2\text{S}$

Q 6 If 6g of hydrogen combine with 48g of oxygen, how many grams of water is obtained?

Q 7 If carbon and oxygen combine in a definite ratio of 3:8 to form carbon dioxide. What mass of oxygen gas is required in carbon dioxide with 10 g of carbon?

Q 8 Give symbol of the followinga. oxygen

- hydrogen
- carbon

Q 9 If atomic mass of carbon is 1u then what is the atomic mass of nitrogen (N=14, C=12)?

Q 10 Identify the anions, cations and charge present on them in following molecules: HCl , NaCl ,  $\text{H}_2\text{O}$  ,  $\text{Al}_2\text{O}_3$

Q 11 Write the chemical formula of the following:

- Oxygen
- Carbon dioxide
- Ammonia
- Calcium carbonate

Q 12 Give the names of the following compounds:

- $\text{H}_2\text{SO}_4$
- He
- CO

Q 13 Write the formula unit mass of the following:

- $\text{NH}_3$
- $\text{CO}_2$
- $\text{K}_2\text{Cr}_2\text{O}_7$
- $\text{SO}_2$
- $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

Q 14 Calculate the mass in grams of 0.8 mole of  $\text{CO}_2$ .

Q 15 In which of the following cases the number of hydrogen atoms is more?

- One mole of  $\text{CH}_4$
- Two mole of  $\text{NH}_3$

- Q 16 Calculate the number of molecules in 20g of water.
- Q 17 How many moles are present in 6g of sulphuric acid?
- Q 18 What is the number of molecules in a drop of water weighing 0.2g?
- Q 19 Calculate the number of S atoms in 2 mole of  $S_8$
- Q 20 How many moles are there in 70g of potassium dichromate, ( $K_2Cr_2O_7$ )?
- Q 21 How many moles of calcium carbonate are present in its 5g ?
- Q 22 What mass of hydrogen chloride, (HCl), will contain the same number of molecules as in
- $6.022 \times 10^{23}$  molecules of water
  - 2.0 g of methane,  $CH_4$

#### 4. Structure of the Atom

Q 1 Write the electronic configuration of chlorine.

Mark (1)

Q 2 What determines the chemical nature of an element?

Mark (1)

Q 3 What do you mean by atomic number of an element?

Mark (1)

Q 4 Define cathode rays.

Mark (1)

Q 5 Which elements have tendency to gain electrons?

Mark (1)

Q 6 What is the relation between mass number and atomic number?

Mark (1)

Q 7 Name the radioisotopes used to –

(a) determine the activity of thyroid gland.

(b) detect blood cells.

Mark (1)

Q 8 What do you understand by isobars?

Mark (1)

Q 9 What is the general name of the elements having 2 or 8 electrons in the valence shell of their atoms?

Mark (1)

Q 10 Explain the two types of valency.

Mark (1)

Q 11 Name three subatomic particles present in an atom.

Mark (1)

Q 12 Who discovered neutron?

Mark (1)

Q 13 Name the scientist who proposed that the atoms are indivisible?

Mark (1)

Q 14 Name the scientist who presented the model of the structure of an atom for the first time.

Mark (1)

Q 15 How can you consider an atom to be electrically neutral when it has both negatively charged electron and positively charged proton?

Mark (1)

Q 16 Name the subatomic particle/s present in the nucleus of an atom.

Mark (1)

Q 17 Write the electronic configuration of chlorine.

Mark (1)

Q 18 Helium atom has a mass number of 4 and 2 protons in its nucleus. How many neutrons does it have?

Marks (2)

Q 19 What are isotopes? Give examples.

Marks (2)

Q 20 How the mass number of an element is defined?

Marks (2)

Q 21 What is the mass and charge of an electron ?

Marks (2)

Q 22 Calculate the maximum number of electrons which can be present in M shell of an atom.

Marks (2)

Q 23 Name the particles which are present in the nucleus. What type of charge is carried by each of them?

Marks (2)

Q 24 Name the scientists who discovered

(a) nucleus

(b) proton

Marks (2)

Q 25 How many neutrons are present in  $^{24}_{12}\text{Mg}$  ?

Marks (2)

Q 26 Write the isotopes of carbon and oxygen.

Marks (2)

Q 27 Why are the atomic masses of some elements are in fractions and not in whole numbers?

Marks (2)

Q 28 List two observations, which show that an atom is not indivisible.

Marks (2)

Q 29 What are isotopes? Explain with an example.

Marks (2)

Q 30 Calculate the number of electrons and neutrons present in  ${}_{13}\text{Al}^{27}$ .

Marks (2)

Q 31 (i) An atom of an element has two electrons in the M-shell. Calculate the atomic number of this element.

(ii) What will be the valency of an element having atomic number 16?

Marks (2)

Q 32 Draw a sketch of Bohr's model of an atom with four shells ?

Marks (3)

Q 33 What weight in grams is represented by

(a) 2 moles of  $\text{CO}_2$

(b) 5 moles of  $\text{NH}_3$ .

Marks (3)

Q 34 The composition of two atomic particles is given below:

	A	B
Protons	6	6
Electrons	6	6
Neutrons	6	8

(a) What is the mass number of A and B?

(b) Which element/elements do they represent?

(c) What is the relation between A and B?

Marks (3)

Q 35 What information about the nucleus was provided by the alpha particle scattering experiment of Rutherford?

Marks (3)

Q 36 What observations were noticed by Rutherford during alpha particle scattering experiment?

Marks (3)

Q 37 An element X has 11 protons. What is the valency of the element? What will be the name of element?

Marks (3)

Q 38 How did Neils Bohr explain the stability of atom?

Marks (3)

Q 39 How did Bohr explain the stability of atom when Rutherford's model was rejected.

Marks (3)



Q 40 How are cathode rays formed from the gas taken in the discharge tube? Explain.

Marks (3)

Q 41 A sample of an element Z contains two isotopes Z-35 and Z-37. If the average atomic mass of this sample is 35.5u, calculate the percentage of the two isotopes in this sample.

Marks (3)

Q 42 Atomic mass of element (A) is 24 and its atomic number is 12.

(i) Calculate the number of neutrons present in an atom of element (A).

(ii) How many electrons will be present in K, L and M energy shell of an atom of element (A)?

Marks (3)

Q 43 Composition of nuclei of two atomic species X and Y are as follows:

X

Y

Protons = 6

Protons = 6

Neutrons = 8

Neutrons = 6

(i) Calculate the mass numbers of X and Y.

(ii) How are (X) and (Y) related to each other?

Marks (3)

Q 44 Elements X, Y, A, D and E have electrons, neutrons and protons as follows:

Element	Electrons	Neutrons	Protons
X	4	4	3
Y	8	9	9
A	18	22	18
D	17	20	17
E	17	18	17

From this data, name

(i) a cation.

(ii) a pair of isotopes.

(iii) an atom of noble gas.

Marks (3)

Q 45 (i) Nucleus of an atom has 6 protons and 6 neutrons. What would be the atomic number, mass number, number of electrons and the number of valency electrons per atom of this element?

(ii) What will be the valency of an element having atomic number 15?

Marks (3)

Q 46 (i) An element has atomic number 14. How many electrons will be present in K, L and M energy shells of its atom?

(ii) If an element N has mass number 24 and atomic number 12, how many neutrons does its atom contain?

Marks (3)

Q 47 Give a brief account of the observations made by Rutherford in his alpha particle scattering experiment.

Marks (5)

Q 48 Describe how electrons in an atom are arranged in different shells.  
Marks (5)

Q 49 An atom of phosphorous can be represented as  ${}_{15}^{31}\text{P}$ ,

- (i) What does the figure 31 indicate?
- (ii) What does the figure 15 indicate?
- (iii) What is the number of protons in an atom of phosphorous?
- (iv) What is the number of electrons in an atom of phosphorous?
- (v) What is the number of neutrons in an atom of phosphorous?

Marks (5)

Q 50 Describe the structure of atom as suggested by Bohr.

Marks (5)

Q 51 State five applications of radioactive isotopes.

Marks (5)

Q 52 Write electronic configuration of the elements whose atomic numbers are 6, 8, 15, 18 and 20 respectively. Also give the name of elements.

Marks (5)

Q 53 Explain the structures of the following atoms giving diagram also.



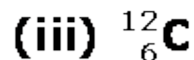
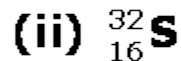
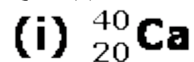
Marks (5)

Q 54 (a) Atomic masses of two isotopes of chlorine are 35u and 37u. They occur in the ratio of 3:1 in nature. Calculate the average atomic mass of chlorine atom on the basis of this data.

(b) Write three uses of isotopes.

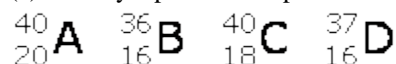
Marks (5)

Q 55 (a) Write the electronic configuration of the following elements:



(b) Atom is electrically neutral. Why?

(c) Identify a pair of isotopes and isobars from the following:



Marks (5)

Q 56 The numbers of the subatomic particles for some elements are given below. Write their atomic numbers and the symbols of the elements they are representing.

- (a)  $8P^+$ ,  $8n$ ,  $8e^-$
- (b)  $17P^+$ ,  $20n$ ,  $17e^-$
- (c)  $13P^+$ ,  $14n$ ,  $13e^-$
- (d)  $12p^+$ ,  $12n$ ,  $12e^-$
- (e)  $7p^+$ ,  $7n$ ,  $7e^-$

Marks (5)

### Most Important Questions

Q 1 What are canal rays?

Q 2 If an atom contains one electron and one proton, will it carry any charge or not?

Q 3 On the basis of Thomson's model of an atom, explain how the atom is neutral as a whole?

Q 4 What do you think would be the observation if the alpha-particle scattering experiment is carried out using a foil of a metal other than gold?

Q 5 Helium atom has an atomic mass of 4 unit and 2 protons in its nucleus. How many neutrons are present in its nucleus?

Q 6 Find the valency of chlorine, magnesium, and sulphur.

Q 7 What is the mass and charge of an electron ?

Q 8 Describe the structure of atom as explained by J.J Thomson.

Q 9 Define the term atomic number.

Q 10 Define the mass number of an element.

Q 11

Name the scientists who discovered

- (a) Nucleus of atom
- (b) Proton

Q 12 Name the particles which are present in the nucleus and what type of charge is there on them?

Q 13 Define cathode rays.

Q 14 Write the relation between mass number and atomic number.

Q 15 Name the radio – isotopes used to –

(a) Determine the activity of thyroid gland

(b) Detect blood cells

Q 16 What were the limitations of J.J. Thomson's model of the atom?

Q 17 What are the limitations of Rutherford's model of the atom?

Q 18 If  $Z = 3$ , what would be the valency of the element? Also name the element.

Q 19  $\text{Na}^+$  has completely filled K shell and L shells. Explain.

Q 20 What are isotopes? Give example?

Q 21 What weight in grams is represented by (a) 2 mole of  $\text{CO}_2$  (b) 5 mole of  $\text{NH}_3$ .

Q 22 Draw a sketch of Bohr's model of an atom with four shells?

Q 23 Helium atom has an atomic mass of 4u and two protons in its nucleus. How many neutrons does it have?

Q 24 Describe how electrons in an atom are arranged in different shells.

Q 25 Describe Rutherford's model of atom.

Q 26 Write the observations in Rutherford's gold foil experiment.

Q 27 Write the electronic configuration of chlorine.

Q 28 What is the general name given to the elements having 2 or 8 electrons in the valence shell of their atoms?

Q 29 What type of elements have tendency to gain electrons?

## 5. The Fundamental Unit of Life

- Q 1 Name two major functional regions of a cell.  
Mark (1)
- Q 2 Every multi-cellular organism has come from a single cell. How?  
Mark (1)
- Q 3 Who discovered the nucleus in the cell?  
Mark (1)
- Q 4 Who discovered the cell?  
Mark (1)
- Q 5 What substances form cell membrane and cell wall?  
Mark (1)
- Q 6 Name two-cell organelles, which have DNA apart from nucleus.  
Mark (1)
- Q 7 Name the cell organelles that are found only in plant cell.  
Mark (1)
- Q 8 Name the cell organelle that is found only in animal cell.  
Mark (1)
- Q 9 Name the cell organelle in which cristae are present?  
Mark (1)
- Q 10 On what factors do shape and size of cell depend?  
Mark (1)
- Q 11 Who coined the term protoplasm?  
Mark (1)
- Q 12 What are chromosomes? Where are they present in the cell?  
Marks (2)
- Q 13 Why is the plasma membrane called a selectively permeable membrane?  
Marks (2)
- Q 14 Why is the cell called the structural and functional unit of life?  
Marks (2)
- Q 15 What are multicellular organisms? Give examples.  
Marks (2)

Q 16 What are unicellular organisms? Give examples.

Marks (2)

Q 17 Who presented the cell theory for the first time? What was it?

Marks (2)

Q 18 Who discovered free-living cells and how?

Marks (2)

Q 19 Name the non - living parts of a cell.

Marks (2)

Q 20 Which cell organelle is known as the kitchen of the cell? Why?

Marks (2)

Q 21 Fill in the vacant columns:

Cell organelles	Functions
Mitochondria	
	Protein synthesis
Golgi apparatus	
	Suicidal bags of the cell

Marks (2)

Q 22 What will happen if the organisation of a cell is damaged due to certain physical or chemical reasons?

Marks (2)

Q 23 Write the technical term for the following:

- An organism whose body consists of many cells.
- Sum total of chemical processes taking place in a cell.

Marks (2)

Q 24 Fill in the missing words in the given table:

Plastids	Salient Feature	Function
Chloroplasts		
	Coloured	Helps pollination
Leucoplasts	Colourless	

Marks (2)

Q 25 How do substances like CO<sub>2</sub> and water move in and out of the cell?

Marks (3)

Q 26 Explain the terms.

- a) Endocytosis
- b) Plasmolysis

Marks (3)

Q 27 Write any four differences between the plasma membrane and cell wall.

Marks (3)

Q 28 Define- a) Diffusion b) Osmosis

Marks (3)

Q 29 When and how the cells were discovered?

Marks (3)

Q 30 Name the living parts of a cell.

Marks (3)

Q 31 Why are Mitochondria known as power house of the cell?

Marks (3)

Q 32 What are the types of plastids? Write their names and functions.

Marks (3)

Q 33 a) Why is the shape and size of the cells different?

b) Who coined the term protoplasm?

c) Name the cell organelle which controls the various activities of the cell.

Marks (3)

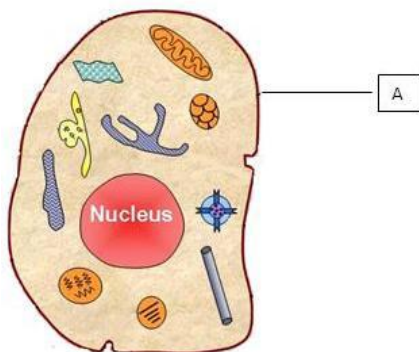


Q 34

a) Name the given cell organelle.

b) State any of its two important functions.

Marks (3)



Q 35

a) Name the labelled part (A).

- b) What is its chemical composition.  
 c) Why is it known as the selectively permeable?

Marks (3)

Q 36 Differentiate between prokaryotic and eukaryotic cell.

Marks (5)

Q 37 Differentiate between diffusion and osmosis.

Marks (5)

Q 38 How does an Amoeba obtain its food?

Marks (5)

Q 39 Draw five different types of cells from Human body

Marks (5)

Q 40 How will you relate nucleus with DNA?

Marks (5)

Q 41 Write one functions of each of the following cell organelles.

- a) Plasma membrane  
 b) Mitochondria  
 c) Lysosomes  
 d) Endoplasmic reticulum  
 e) Vacuoles

Marks (5)

Q 42 a) Draw a diagram of a prokaryotic cell and label the given parts:

- i) cell wall ii) nucleoid iii) ribosomes.

b) Complete the given table illustrating the differences between the prokaryotic and eukaryotic cells.

Marks (5)

Q 43 a) What is the name given to the thread shaped structures in the nucleus? Why is it important?

b) Draw a diagram of the nucleus to show the given parts:

- i) nucleolus  
 ii) nuclear pore  
 iii) nuclear envelope

Marks (5)

Prokaryotic cell	Eukaryotic cell
Size of the cell small	Size of the cell large
Presence of single chromosome	
	Membrane bounded organelles present

Q 44 a) Name a cell organelle other than nucleus having DNA.

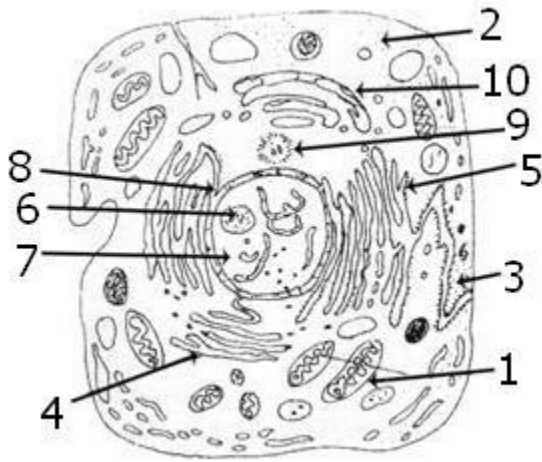
- b) Give the full form of DNA and RNA.  
 c) Give two functions of mitochondria.

Marks (5)



- Q 1 What are the tenets of cell theory?
- Q 2 Why is the cell called the unit of structure and function in a living organism?
- Q 3 Is an elephant cell longer than the cell of a rat? Why?
- Q 4 Explain why do the smaller cells have better efficiency?
- Q 5 How do the new cells arise from the pre existing cells?
- Q 6 What is the meaning of division of labour? Is it different from cell to cell?
- Q 7 What do you mean by a selectively permeable membrane?
- Q 8 Write the composition & function of the cell wall.
- Q 9 Define the process of Diffusion.
- Q 10 What is the process of Osmosis?
- Q 11 Differentiate the terms:  
(i) Hypotonic  
(ii) Isotonic  
(iii) Hypertonic
- Q 12 What is that process by which amoeba acquires its food?
- Q 13 Draw the figure of an onion peel showing cells
- Q 14 Classify the living organism on the basis of number of cells they have.
- Q 15 Draw the figure of various types of cells present in a human body.
- Q 16 Give the composition and structure of a unit membrane.

Q 17 In the given figure of an animal cell as observed under an electron microscope.



- (i) Name the parts labeled 1 to 10.
- (ii) Which parts are concerned with the following functions.
  - (a) Release of energy
  - (b) Protein synthesis
  - (c) Transmission of hereditary characters from parents to their offsprings.
- (iii) Mention any two structures, found only in plant cell not in animal cell.

Q 18 How does the new cell arise from pre existing cells?

Q 19 What is the meaning of division of labour? Is it different from cell to cell?

Q 20 What are unicellular organisms? Give examples.

Q 21 What are multicellular organisms? Give examples.

Q 22 Every multi - cellular organism has come from a single cell. How?

Q 23 How do substances like  $\text{CO}_2$  and water move in and out of the cell?

Q 24 Why is the plasma membrane called a selectively permeable membrane?

Q 25 On what factors do shape and size of a cell depend?

Q 26 If the nucleus is removed from the cell what will happen to the cell?

Q 27 Write the main functions of a vacuole.

Q 28 Write differences between a plant cell and an animal cell.

Q 29 What are the differences between cell wall and cell membrane?

Q 30 How is cytoplasm different from nucleoplasm?

Q 31 Is there any difference between prokaryotic and eukaryotic cell? Justify.

Q 32 Differentiate between chromoplast and leucoplasts.

Q 33 Explain that mitochondrion is the “Power house” of the cell.

Q 34 How will you relate nucleus with DNA?

Q 35 What are chromosomes? Where are they present in the cell?

Q 36 Explain the structure of Mitochondria.

## 6. Tissues

Q 1 Give atleast two locations where cartilaginous connective tissue is present in our body.

Mark (1)

Q 2 What are the other names of striated muscles?

Mark (1)

Q 3 What is middle lamella?

Mark (1)

Q 4 Name the meristematic tissue, which increases the thickness of plants.

Mark (1)

Q 5 Which tissue makes up the husk of coconut?

Mark (1)

Q 6 Write two functions of stomata?

Mark (1)

Q 7 How does a neuron look like?

Mark (1)

Q 8 Where is apical meristem found?

Mark (1)

Q 9 Name types of simple plant tissues.

Mark (1)

Q 10 Write a brief note on muscle tissue?

Marks (2)

Q 11 What is phloem parenchyma?

Marks (2)

Q 12 Draw a diagram of a neuron.

Marks (2)

Q 13 Name the following.

a)Tissue that forms the inner lining of our mouth.

b)Tissue that connects muscle to bone in human.

c)Tissue that transports food in plants.

d)Tissue that stores fat in our body.

Marks (2)

Q 14 What is the composition of blood?

Marks (2)

Q 15 How many types of tissues are found in animals?

Marks (2)

Q 16 What are the functions of areolar tissue?

Marks (2)

Q 17 How many types of elements together makeup the xylem tissue? Name them.

Marks (2)

Q 18 What are the constituents of phloem?

Marks (2)

Q 19 Name the fluid connective tissue in humans. What are its various constituents?

Marks (2)

Q 20 “Multi-cellular organisms show division of labour.” Comment.

Marks (2)

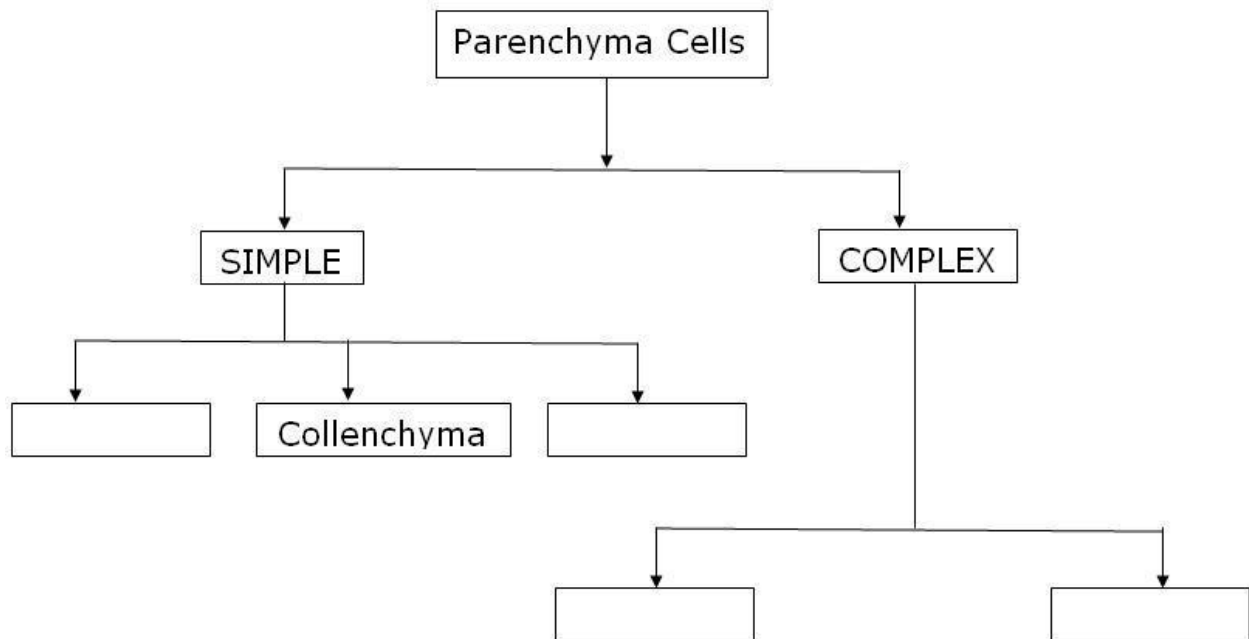
Q 21 How does the cork act as a protective tissue?

Marks (2)

Q 22 State two points of differences between bone and cartilage.

Marks (2)

Q 23 Complete the table:



Marks (2)

Q 24 Distinguish between xylem tissue and phloem tissue.

Marks (3)

Q 25 What is cork? Mention its uses.

Marks (3)

Q 26 What are the functions of bone, cartilage and ligament?

Marks (3)

Q 27 Give three features of cardiac muscles.

Marks (3)

Q 28 What is the utility of the tissues in multi-cellular organisms?

Marks (3)

Q 29 What is the role of epidermis in plants?

Marks (3)

Q 30 (i) Name the living component common to both the complex permanent tissues found in plants. What is its function?  
(ii) State any two ways in which these tissues differ functionally from each other.

Marks (3)

Q 31 Identify the type of tissue in the following and state one function of each:

- (i) Skin
- (ii) Heart muscles
- (iii) Lining of Kidney tubule

Marks (3)

Q 32 (i) "Epidermal cells are protective in nature". Justify and support your answer with two examples.

(ii) Name the structure that receives impulse in neuron.

Marks (3)

Q 33 What are the functions of connective tissue?

Marks (5)

Q 34 What are the differences between striated, unstriated and cardiac muscles?

Marks (5)

Q 35 Differentiate between:

- (a) Simple tissue and complex tissue
- (b) Parenchyma, collenchyma and sclerenchyma

Marks (5)

Q 36 (i) Name the plant tissue found in the husk of a coconut.

(ii) Identify the chemical that is responsible for its stiffness.

(iii) Give three ways in which it differs from parenchymatous cells.

Marks (5)

Q 37 Give one term for the following:

- (i) Structure that takes impulses away from a neuron.
- (ii) Meristematic tissue that increases the girth in plants.
- (iii) Space found between the cells of the connective tissue.
- (iv) Small pores found on the epidermis of a plant leaf.
- (v) Protective covering of various organs in animals.

Marks (5)

Q 38 Answer each of the following in one word or one sentence:

- (i) What makes the bone matrix hard?
- (ii) Which tissue is responsible for moving our hands up and down?
- (iii) Name the part of phloem that is nucleated.
- (iv) Give another term for striated muscles.
- (v) Name the only living cell of xylem.

Marks (5)

### Most Important Questions

Q 1 What is meristem?

Q 2 What is tissue?

Q 3 Name the two types of elements found in phloem.

Q 4 Name two specialized kinds of parenchyma.

Q 5 Name the main components of xylem. Which out of them is most suitable for carrying water?

Q 6 What is permanent tissue?

Q 7 Name the term for the cells having shape and size like parenchyma cells but can do photosynthesis.

Q 8 What is the difference between apical, lateral and intercalary meristem?

Q 9 Why tissues are important in multicellular organisms?

Q 10 What is the function of collenchyma in plants?

Q 11 Which tissue makes the plant hard and stiff and what is the unique property of this tissue?

Q 12 What is the function of epidermis in plants?

Q 13 Which structures of the plant are responsible for exchange of gases and where are these located?

Q 14 What are the properties of xylem tracheids and vessels?

Q 15 What is the function of phloem?

Q 16 Give two examples of lateral meristem.

Q 17 What are the components of phloem?

- Q 18 What is the function of xylem parenchyma and xylem fibres?
- Q 19 What is the unique property of sieve tubes?
- Q 20 Name the four types of animal tissues .
- Q 21 Where is cuboidal epithelium located?
- Q 22 What is the function of ligament?
- Q 23 Mention two special properties of nervous tissue.
- Q 24 Name the tissue in which the matrix is not produced by the cells present in it.
- Q 25 What is the function of blood?
- Q 26 What are the different types of epithelial tissue?
- Q 27 Which tissue is responsible for the transportation of the substances by lining blood vessels or lung alveoli?
- Q 28 What is the function of columnar epithelium in respiratory tract?
- Q 29 Why are glandular epithelial tissues important?
- Q 30 Write the function of areolar tissue.
- Q 31 What is the property of cartilage?
- Q 32 Which tissue stores fats in our body?
- Q 33 Which tissue is responsible for the movement of the body?
- Q 34 Write the properties of voluntary muscles.
- Q 35 Where are involuntary muscles located and what are their functions?
- Q 36 Why cardiac muscles are unique?
- Q 37 Where is nervous tissue located?
- Q 38 What are neurons?
- Q 39 What is the chief function of columnar tissue in the digestive system?



## 7. Diversity in Living Organisms

- Q 1 Name the branch of the biology that deals with the classification.  
Mark (1)
- Q 2 Who was the first to propose the two-kingdom system of classification?  
Mark (1)
- Q 3 Who proposed three-kingdom classification?  
Mark (1)
- Q 4 What is meant by triploblastic?  
Mark (1)
- Q 5 What is haemocoel ?  
Mark (1)
- Q 6 Name the person who has given the five-kingdom classification.  
Mark (1)
- Q 7 Which is the largest phylum of animal kingdom?  
Mark (1)
- Q 8 What is the function of canal system in sponges?  
Mark (1)
- Q 9 What are Gymnosperms?  
Mark (1)
- Q 10 What is the purpose of classification?  
Marks (2)
- Q 11 What do you mean by evolution?  
Marks (2)
- Q 12 What are the bases due to which plants and animals are classified as different categories?  
Marks (2)
- Q 13 What are the four main characteristics of chordates?  
Marks (2)
- Q 14 Draw the hierarchy of the classification?  
Marks (2)
- Q 15 Give the names of different groups of Plant Kingdom.  
Marks (2)

Q 16 Will advanced organisms be the same as complex organisms? Why?  
Marks (2)

Q 17 Give one example each of Hemichordata, Urochordata, Cephalochordata and Vertebrata.  
Marks (2)

Q 18 Pick the odd one out and justify your choice by giving reasons.

i) Coelenterates, Echinoderms, Vertebrates, Molluscs 1 mark

ii) Chicken, Bat, Ostrich, Penguin 1 mark

Marks (2)

Q 19 Pick the odd one out and justify your choice by giving reasons.

i) *Riccia*, *Marsilea*, *Marchantia*, *Funaria* 1 mark

ii) Crocodile, *Salamander*, Sparrow, Bat 1 mark

Marks (2)

Q 20 To which major group do the following belong?

i) Bat

ii) Cycas

iii) Plasmodium

iv) Mosquito

Marks (2)

Q 21 Give two points of difference between Chondrichthyes and Osteichthyes.

Marks (2)

Q 22 Differentiate between Poriferans and Coelenterates.

Marks (3)

Q 23 Give two examples of Bryophytes and Pteridophytes.

Marks (3)

Q 24 Define advantage of using scientific name instead of common name?

Marks (3)

Q 25 Define the main characteristics of Vertebrates.

Marks (3)

Q 26 Bat can fly still it is placed in mammals. Why?

Marks (3)

Q 27 Why thallophytes, bryophytes and pteridophytes are called 'cryptogams'?

Marks (3)

Q 28 Show the diagrammatic representation of five-kingdom classification.

Marks (3)

Q 29 Draw a flowchart to depict classification of Kingdom Plantae.

Marks (3)

Q 30 a) Identify four features possessed by all Chordates.

$\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$  marks

b) In which class would you place any organism which has:

- i. a scaly exoskeleton and a bony endoskeleton.
- ii. a scaly exoskeleton and lay eggs outside water.  $\frac{1}{2}+\frac{1}{2}$  marks

Marks (3)

Q 31 Give one point of difference between:

- i) Bilateral and radial symmetry
- ii) Notochord and nerve cord

Marks (3)

Q 32 (a) Name the locomotory organs of echinoderms.

(b) Distinguish between-

1. Tapeworm and earthworm
2. Mite and termite

Marks (3)

Q 33 Point out differences between the following:

- (a) Bony and cartilaginous fishes.
- (b) Bilateral and radial symmetry.
- (c) Notochord and nerve chord.

Marks (5)

Q 34 Give a brief account of angiosperms.

Marks (5)

Q 35 What are the bases by which Vertebrata are divided into sub-groups?

Marks (5)

Q 36 Identify the below given organism and write four major characteristics of its phylum.



Marks (5)

Q 37 Identify the below given organism and give four major characteristics of its phylum:



Marks (5)

Q 38 Identify the below given organism and give any four major characteristics of its phylum:



Marks (5)

Q 39 Identify the below given organism and give four major characteristics of its phylum:



Marks (5)

Q 40 Identify the below given organism, and give four major characteristics of its phylum:



Marks (5)

Q 41 Identify the below given organism and give four major characteristics of its phylum:



Marks (5)

#### Most Important Questions

Q 1 Name the character included by Aristotle for biological classification?

Q 2 Name one edible fungus?

Q 3 Write a short note on distribution of bacteria.

Q 4 What are mycoplasma?

Q 5 What is alternation of generation?

Q 6 Who proposed five-kingdom classification? What are the names of kingdoms?

- Q 7 What are the criteria used by Whittaker for five kingdom classification?
- Q 8 Draw the different shapes of bacteria.
- Q 9 What are lichens?
- Q 10 Write the advantages and disadvantage of binomial system of classification.
- Q 11 Name the amphibians of the plant kingdom?
- Q 12 Write any four common features of algae.
- Q 13 What is the meaning of the word 'Cryptogamae'.
- Q 14 How are angiosperms different from gymnosperms , give two main points.
- Q 15 What are the two classes of angiosperms? What is the basis of division?
- Q 16 Name the organisms responsible for the fixation of carbon dioxide in water bodies?
- Q 17 How are cones formed in gymnosperms?
- Q 18 Name the group of the following organisms:  
(a) Sponges  
(b) flatworms
- Q 19 Write two features of group arthropoda. Give an example of an arthropod.
- Q 20 What are the differences between animals belonging to the Aves group and those in the Mammalia?
- Q 21 Distinguish between open type and closed type of circulatory system.
- Q 22 What is notochord? How are animals divided on the basis of notochord?
- Q 23 Write any two important features found in platyhelminthes.
- Q 24 Differentiate the two body forms exhibited by coelentrates .

Q 25 Describe the body structure of sponges.

Q 26 Describe the 4 characteristic features of the largest phylum of kingdom Animalia.

Q 27 Describe the class Mammalia.

Q 28 Define bilateral symmetry?

Q 29 Name the second largest animal phylum.

Q 30 Which phylum shows the presence of spongin fibres in its organisms?

Q 31 Describe coelom, coelomate, pseudocoelomate and acoelomate.

Q 32 Identify the phylum which shows the presence of notochord, dorsal nerve chord and gill-slits?

Q 33 Which phylum shows the presence of mucus glands in the skin and three chambered heart?

Q 34 Which reptile has four-chambered heart?

## 8. Motion

Q 1 Define centripetal force.

Mark (1)

Q 2 When do we say the acceleration of a body is zero?

Mark (1)

Q 3 What is meant by non-uniform acceleration?

Mark (1)

Q 4 What is meant by uniform acceleration?

Mark (1)

Q 5 Define acceleration.

Mark (1)

Q 6 When does the velocity and speed of a moving body become identical?

Mark (1)

Q 7 What is meant by average velocity of a body moving in a particular direction?

Mark (1)

Q 8 When does the velocity change?

Mark (1)

Q 9 Define the term displacement.

Mark (1)

Q 10 Define the term distance.

Mark (1)

Q 11 What is a scalar quantity?

Mark (1)

Q 12 How is the position of an object described?

Mark (1)

Q 13 What is meant by body in motion?

Mark (1)

Q 14 What is meant by body at rest?

Mark (1)



Q 15 Why is uniform linear motion not an accelerated motion?

Mark (1)

Q 16 What is positive acceleration and negative acceleration?

Mark (1)

Q 17 What is meant by non-uniform velocity?

Mark (1)

Q 18 What is meant by uniform velocity?

Mark (1)

Q 19 Define velocity.

Mark (1)

Q 20 Define non-uniform motion.

Mark (1)

Q 21 Define uniform motion.

Mark (1)

Q 22 Define a vector quantity.

Mark (1)

Q 23 What is meant by angular acceleration?

Marks (2)

Q 24 What is meant by angular velocity? Write its SI unit.

Marks (2)

Q 25 Why is the motion of Satellites around their planets considered an accelerated motion?

Marks (2)

Q 26 A racing car has a uniform acceleration of  $4 \text{ ms}^{-2}$ . What distance will it cover in 10 seconds after the start?

Marks (2)

Q 27 A bus covers a distance of 250 km from Delhi to Jaipur towards West in 5 hours in the morning and returns to Delhi in the evening covering the same distance of 250km in the same time of 5 hours.

Find

(a) Average speed

(b) Average velocity of the bus for the whole journey.

Marks (2)

Q 28 A car travels a distance of 200 km from Delhi to Ambala towards North in 5 hours.

Calculate

(i) Speed

(ii) Velocity of car for this journey.

Marks (2)

Q 29 What are equations of motion?

Marks (2)

Q 30 A body thrown vertically upward rises up to a height 'h', and comes back to the initial position.

Calculate

- i) the total distance travelled by the body
- ii) the displacement of the body.

Marks (2)

Q 31 Train A travels a distance of 120 km in 3 hours whereas another train B travels a distance of 180 Km in 4 hours. Which train travels faster.

Marks (2)

Q 32 Draw distance time graph for uniform and non uniform motion.

Marks (2)

Q 33 Convert speed of 72km/hr into

- a) m/s
- b) cm/s

Marks (2)

Q 34 What are the characteristics of scalar quantities?

Marks (2)

Q 35 A train starting from rest attains a velocity of  $72 \text{ km h}^{-1}$  in 5 min. Assuming that the acceleration is uniform, find

- (i) The acceleration
- (ii) The distance travelled by the train for attaining this velocity.

Marks (2)

Q 36 A cyclist goes around a circular track once every 2 minutes. If the radius of the circular track is 105 metres, calculate his speed. (Given  $\pi = 22/7$ )

Marks (2)

Q 37 Why is uniform circular motion called accelerated motion?

Marks (2)

Q 38 A scooter moving at a speed of 10m/s is stopped by applying brakes which produce a uniform acceleration of  $-0.5 \text{ ms}^{-2}$ . How much distance will be covered by the scooter before it stops?

Marks (2)

Q 39 A moving train is brought to rest within 20 sec by applying brakes. Find the initial velocity, if the retardation due to brakes is  $2 \text{ m/s}^2$ .

Marks (2)

Q 40 A driver changes the speed of car from 25m/s to 10m/s in 5 seconds. Find the acceleration of the car.

Marks (2)

Q 41 The average speed of a bicycle, an athlete and a car are 18 km/hr, 7 m/s and 2 km/min respectively. Which among these is the fastest and the slowest one?

Marks (2)

Q 42 An aeroplane lands at 432 km/hr and stops after covering a runway of 4 km. Calculate (i) acceleration (ii) time in which it comes to rest.

Marks (2)

Q 43 What are the characteristics of vector quantities?

Marks (2)

Q 44 The brakes applied to a car produced an acceleration of  $6 \text{ ms}^{-2}$  in the opposite direction of the motion. If the car takes 2s to stop after the application of brakes, calculate the distance it travels during this time.

Marks (3)

Q 45 A scooter acquires a velocity of 36km per hour in 10 seconds just after the start. Calculate the acceleration of the scooter.

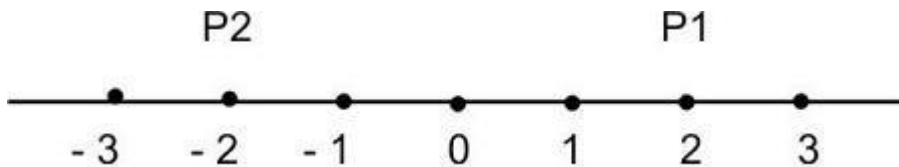
Marks (3)

Q 46 Consider the situation shown in fig. below: The x-axis is in meters

a) What is the position of a particle when it is at  $P_1$  and when it is at  $P_2$ ?

b) Are the positions same?

c) Are the two distance of the particle from the origin same?



Marks (3)

Q 47 A car covers 30 km at a uniform speed of 60 km/h and the next 30 km at a uniform speed of 40 km/h. Find the total time taken by the car.

Marks (3)

Q 48 A bus between Vishakhapatnam and Hyderabad passed the 100 km, 160 km and 220 km points at 10.30 a.m., 11.30 a.m. and 1.30 p.m. Find the average speed of the bus.

Marks (3)

Q 49 A man travels a distance of 1.5m towards East, then 2.0m towards South and finally 4.5m towards East.

i) What is the total distance traveled?

ii) What is his total displacement?

Marks (3)

Q 50 Define the following

a) Speed

b) Average speed

c) Uniform speed.

Marks (3)

Q 51 A particle is moving in a circle of radius 1m. Draw a diagram to show the following positions of the particle

- a) 1m. from the center,  $30^\circ$  North-East
- b) 1m. from the center,  $30^\circ$  West-North
- c) 1m. from the center towards South.

Marks (3)

Q 52 Differentiate between

- a) Speed and Average speed
- b) Speed and Velocity
- c) Uniform linear motion and Uniform circular motion.

Marks (3)

Q 53 How many different types of velocity-time (speed-time) graphs are possible for a straight-line motion?

Marks (5)

Q 54 Explain using distance – time graphs

- a) When the body is at rest
- b) When the body is moving with a uniform speed
- c) When the body is moving with a non-uniform speed.

Marks (5)

Q 55 A train travels at a speed of 60 km/hr for 0.52hr, at 30 km/h for the next 0.24 hr and then at 70 km/h for the next 0.71h. What is the average speed of the train?

Marks (5)

Q 56 Write the mathematical expression & S.I. units for the following

- 1. Speed
- 2. Average speed
- 3. Velocity
- 4. Average Velocity
- 5. Acceleration.

Marks (5)

Q 57 Manav runs from one end X to the other end Y of a straight 200m road in 2 minutes 30 seconds. Then, he turns back and covers another 80m to point Z in another 1 minute. Find Manav's average speed and velocities

- (a) from X to Y.
- (b) from X to Z.

Marks (5)

Q 58 An object starts from rest and is uniformly accelerated so that its speed is 60 m/s after 20s. If it travels with this speed for 40 s and is then brought to rest by a uniform retardation in 30 s. Sketch the velocity-time graph and calculate the acceleration, the retardation and the total distance travelled.

Marks (5)

Q 59 Two trains X and Y are running on parallel tracks with a speed of 72km/h and 54km/h respectively. The driver of train X applies the brake and it comes to a stop in 10seconds. While the driver of train Y applies the brake and the train retards uniformly before coming to rest in 15 seconds. Plot distance-time graphs for both the trains. Also, calculate the distance travelled by each train after the brakes were applied.

Marks (5)

Q 60 Derive the three equations of motion from the speed-time graph.

Marks (5)

Q 1 We say that displacement can be +ve, -ve or 0. Give example for each case.

Q 2 A bus is moving in a crowded area. What type of motion does it possess?

Q 3 A body is moving in such a way that in every 10 seconds it covers a distance of 15 m. What do you conclude from the statement?

Q 4 There is a park 3 km away from my home. On a particular day I went to the park with my brother. When we came back my father asked one question each from both of us. My answer was 6 km but that of my brother was 0 km. what do you infer from the description?

Q 5 What do you mean by the term motion?

Q 6 Write any two points to distinguish between uniform and non-uniform velocity.

Q 7 Does uniform motion mean the same as the uniform velocity? Explain.

Q 8 A cyclist goes around a circular track once every 2 minutes. If the radius of the circular track is 105 metres, calculate his speed. (Given  $\pi = 22/7$ )

Q 9 What name is given to the speed in specific direction?

Q 10 Give one example of a situation in which a boy has a certain average speed but its average velocity is zero.

Q 11 What do the following measure in a car?

(a) Speedometer (b) Odometer.

Q 12 When does the velocity and speed of a moving body become identical?

Q 13 A car travels a distance of 300 km from Noida to Ambala towards North in 5 hours. Calculate (i) speed & (ii) velocity of car for this journey?

Q 14 Acceleration is the rate of change of velocity. Draw a graph to show the motion of a body with uniform acceleration.

Q 15 A car covers a distance from A to B at 40 km/h and while returning it travels at 50 km/h. calculate the average speed.

Q 16 We know that acceleration is the rate of change of velocity. A car is moving with constant velocity. Show that the acceleration is zero.

Q 17 Draw the graph to show non-uniform motion.

Q 18 Look at the table:

Time	10:30 am	11:00 am	11:30 am	12:00 noon	12:30 pm
Distance from origin point (KM)	0	15	28	40	60

- 1) Is the car is moving with constant speed?
- 2) What is the average speed?
- 3) Which duration represents the maximum velocity?

Q 19 Name the motion when distance travelled by an object decreases with time. Also show the distance time variation.

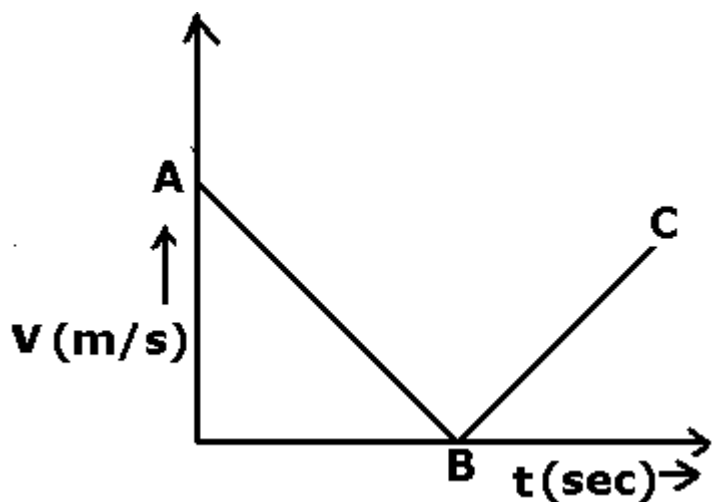
Q 20 A driver changes the speed of car from 10m/s to 20m/s in 5 seconds. Find the acceleration of the car?

Q 21 A stone is dropped freely from the top of a tower and it reaches the ground in 4 seconds. Calculate height of the tower. ( $g = 10 \text{ m/s}^2$ )

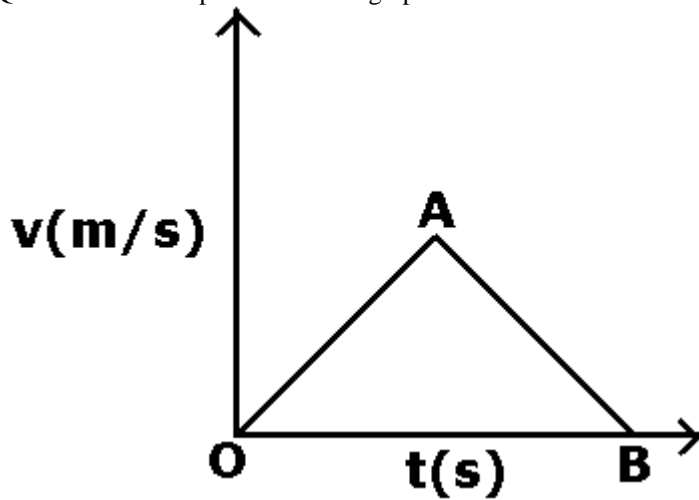
Q 22 From the top of a tower 45 m high, two stones are released. One vertically downwards and the other with a horizontal velocity of 30 m/s. How long will each stone take to strike the ground and how far from the tower will each stone strike the ground? ( $g = 10 \text{ m/s}^2$ )

Q 23 A body starts from rest and acquire a velocity of 10 m/s in 2 seconds. Find acceleration.

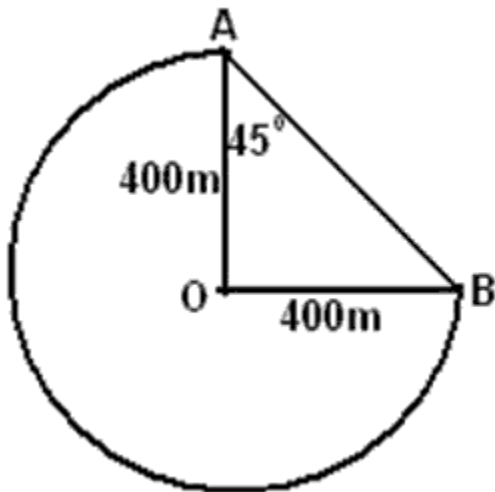
Q 24 Give the interpretation of the graph:



Q 25 Give the interpretation of the graph:



Q 26 A cyclist travels  $3/4$  of a circular track from A to B as shown in figure. The radius of the circular track is 400 m.



(i) What is the distance travelled by the cyclist?

(ii) What is the displacement?

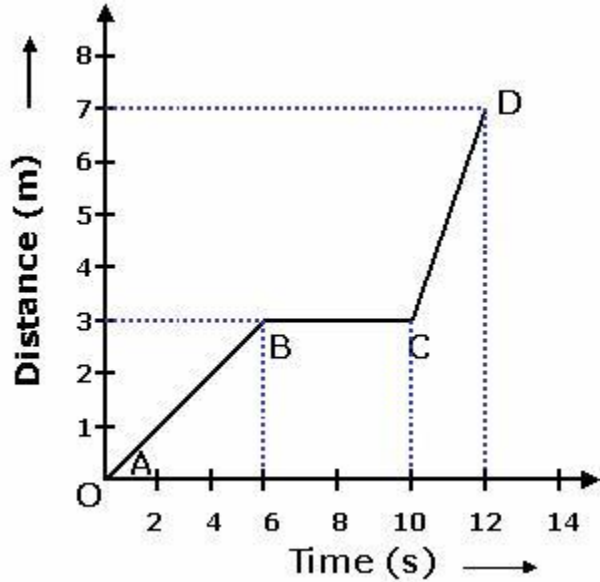
Q 27 State the reason, why velocity-time graph can never be a straight line parallel to velocity axis?

Q 28 Draw displacement-time and velocity-time graphs for a body moving with constant velocity.

Q 29 If initially the body is moving with some uniform velocity and then it accelerates, draw velocity-time graph for the motion.

Q 30 When acceleration due to gravity is positive and negative?

Q 31 The graph shows the position of body at different times. Calculate the speed of the body as it moves from:



(i) A to B

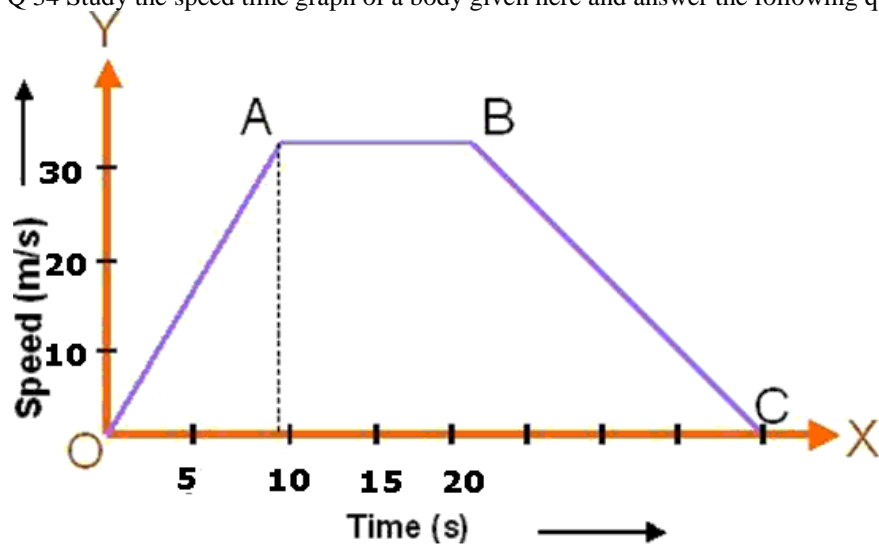
(ii) B to C and

(iii) C to D.

Q 32 A racing car has a uniform acceleration of  $4\text{m/s}^2$ . What distance will it cover in 10 seconds after the start?

Q 33 What type of motion does a freely falling body exhibit?

Q 34 Study the speed time graph of a body given here and answer the following questions:



(a) What type of motion is represented by OA?

(b) What type of motion is represented by AB?

(c) What type of motion is represented by BC?



## 9. Force and Laws of Motion

Q 1 Why does a boxer move his head backwards to minimize the effect of an incoming punch?

Mark (1)

Q 2 Briefly explain how an expert karate player breaks a slab of ice with a single blow.

Mark (1)

Q 3 What is meant by balanced forces?

Mark (1)

Q 4 A swimmer swims forward, even though he pushes water backward while swimming. Why?

Mark (1)

Q 5 When a force acting on a body has an equal & opposite reaction, then why should the body move at all.

Mark (1)

Q 6 What do you mean by impulsive force?

Mark (1)

Q 7 Define impulse.

Mark (1)

Q 8 Define momentum.

Mark (1)

Q 9 What force is needed to produce an acceleration of  $2 \text{ m/s}^2$  in a body of mass  $3 \text{ kg}$ ?

Mark (1)

Q 10 Give a simple experiment to illustrate the inertia of rest.

Marks (2)

Q 11 Why is it advised to tie the luggage with a rope on the roof of buses?

Marks (2)

Q 12 In oil tankers some space is left at the top while filling them. Explain why?

Marks (2)

Q 13 A person is prone to more serious injuries when falling from a certain height on a hard concrete floor than on a sandy surface. Explain why.

Marks (2)

Q 14 A body is moving on a rough level road with a speed of  $15 \text{ m/s}$  along a given direction. Does any force need to maintain this speed? Why?

Marks (2)

Q 15 What happens when you shake a wet piece of cloth?

Marks (2)

Q 16 An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle & road if the vehicle is to be stopped with a negative acceleration of  $1.7 \text{ ms}^{-2}$ ?

Marks (2)

Q 17 What do you mean by the force of friction? How can it be minimised?

Marks (2)

Q 18 Define force. Give its SI unit.

Marks (2)

Q 19 Explain why does a gun recoil when a shot is fired from it?

Marks (3)

Q 20 Two persons manage to push a motorcar of mass 1200 kg at a uniform velocity along a level road. The same motorcar can be pushed by three persons to produce an acceleration of  $0.2 \text{ ms}^{-2}$ . With what force does each person push the motorcar?

Marks (3)

Q 21 A force of 5 N gives a mass  $m_1$  an acceleration of  $10 \text{ m/s}^2$  & on mass  $m_2$ , an acceleration of  $20 \text{ m/s}^2$ , what acceleration would it give if both the masses were tied together?

Marks (3)

Q 22 The following is the distance time table of an object in motion.

Time (s)	0	1	2	3.2	4	5	6	
Distance (m)	0	96	120	180	215	310	420	

a) What conclusion can you draw about the acceleration? Is it constant? Increasing? Decreasing? Or Zero?

b) What do you infer about the forces acting on the object?

Marks (3)

Q 23 A car with a dead battery, is to be pushed for some time so as to start it why? What does this example signify?

Marks (3)

Q 24 Which would require a greater force, accelerating 10g mass at  $5 \text{ m/s}^2$ , or a 20 g mass at  $2 \text{ m/s}^2$ ?

Marks (3)

Q 25 How many types of inertia do the material bodies have?

Marks (3)

Q 26 State the three Newton's Laws of Motion.

Marks (3)

Q 27 At the top of the oil tankers, some space is left while filling them. Explain, why.

Marks (3)

Q 28 Two blocks made of different metals identical in shape and size are acted upon by equal forces which cause them to slide on a horizontal surface. The acceleration of the second block is found to be 4 times that of the first. What is the ratio of the mass of the first to second?

Marks (3)

Q 29 An 8000 kg engine pulls a train of 5 wagons, each wagon of mass 2000 kg, along a horizontal track. If the engine exerts a force of 40,000N & the track offers a friction force of 5,000 N. Calculate

- the net accelerating force,
- the acceleration of the train, and
- the force of wagon 1 on wagon 2.

Marks (5)

Q 30 Two cars weighing 1500 kg are made to collide with a wall. The initial & final velocities of the car are - 15.0 m/s & 2.6 m/s respectively. If the collision lasts for 0.15 s, then find impulsive force exerted on the car.

Marks (5)

Q 31 A bullet of mass 20 g and with the velocity of  $150\text{ms}^{-1}$  moving horizontally strikes a wooden material and comes to rest in 0.02 s. Calculate the magnitude of the force exerted by the wooden material on the bullet.

Marks (5)

Q 32 Two football players of opposite teams collide while they are trying to hit a football on the ground and after colliding, they move off together. One with a mass of 60 kg was travelling with a velocity of  $5.0\text{ m s}^{-1}$  and the other footballer with a mass of 55 kg was moving faster with a velocity  $6.0\text{ m s}^{-1}$  towards the first player. What is the direction and the velocity with which they move after they become entangled?

Marks (5)

Q 33 A large bus and a van, both moving with a velocity of magnitude  $v$ , have a head-on-collision and both the vehicles stop after the collision. If the time of the collision is 1 sec then,

- Which vehicle experiences smaller force of impact?
- Which vehicle experiences the smaller momentum change?
- Which vehicle experiences the greater acceleration?
- Why is it that the truck suffers less damage than the car?

Marks (5)

### Most Important Questions

Q 1 Define inertia.

Q 2 What force is needed to produce on acceleration of 2 m/s<sup>2</sup> a body of mass 3kg?

Q 3 What is meant by balanced forces?

Q 4 What is force?

Q 5 A person is prone to more serious injuries when falling from a certain height on a hard concrete floor than on a sandy surface. Explain why.

Q 6 Give a simple experiment to illustrate the inertia of rest.

Q 7 Write Newton's Laws of Motion.

Q 8 Which would require a greater force accelerating 10g mass at  $5 \text{ m/s}^2$ , or a 20 g mass at  $2 \text{ m/s}^2$ ?

Q 9 Explain why does a gun recoil when a shot is fired from it?

Q 10 The following is the distance time table of an object in motion.

<b>Time(s)</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Distance(m)</b>	<b>0</b>	<b>1</b>	<b>8</b>	<b>27</b>	<b>67</b>	<b>125</b>	<b>216</b>	<b>343</b>

a) What conclusion can you draw about the acceleration? Is it constant? Increasing? Decreasing? Or Zero?

b) What do you infer about the forces acting on the object?

Q 11 A hammer of mass 500 g, moving at 50 m/s, strikes a nail. The nail stops the hammer in a very short time of 0.01 s. What is the force of the nail on the hammer?

Q 12 Give the statement of second law of motion. Hence derive its mathematical formula.

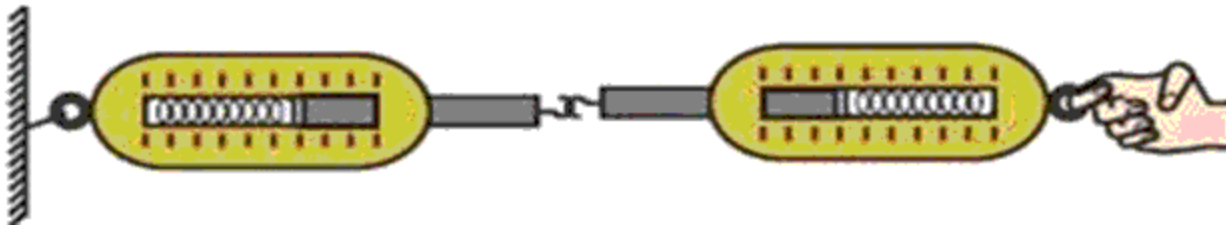
Q 13 why we tend to fall forward when a bus suddenly stops?

Q 14 Why we tend to fall backward when a bus suddenly starts?

Q 15 A force changes the velocity of a box having mass 2kg from 2 m/sec to 5 m/sec in 3sec. Find the acceleration and the magnitude of force.

Q 16 A girl of mass 40kg having velocity 2m/sec jumps on a stationary cart of mass 4kg. Find the common velocity with which both will travel?

Q 17 Two spring balance are attached to each other as given in the figure:



If some force pulls the right spring balance will the left spring balance show the same reading? Why?

Q 18 A ball of mass 5 kg moving with velocity 3m/sec strikes a ball of mass 2 kg kept at rest. If the lighter ball moves with a velocity 2 m/sec after the collision find the velocity of the heavier ball?

Q 19 A trolley of mass 30kg is kept at rest. A force makes it to move with velocity 3m/sec in 2 sec. Find the force applied on it?

Q 20 If action is always equal and opposite to reaction, then how a horse is able to pull the cart?

Q 21 Define inertia.

Q 22 What force is needed to produce an acceleration of  $2 \text{ m/s}^2$  in a body of mass 3kg?

Q 23 What is meant by balanced forces?

Q 24 What is force?

Q 25 A person is prone to more serious injuries when falling from a certain height on a hard concrete floor than on a sandy surface. Explain why.

Q 26 Write Newton's Laws of Motion.

Q 27 Explain why does a gun recoil when a shot is fired from it?

Q 28 A hammer of mass 500 g, moving at 50 m/s, strikes a nail. The nail stops the hammer in a very short time of 0.01 s. What is the force of the nail on the hammer?

Q 29 why we tend to fall forward when a bus suddenly stops?

Q 30 Why we tend to fall backward when a bus suddenly starts?

Q 31 If action is always equal and opposite to reaction, then how a horse is able to pull the cart?

## 10. Gravitation

- Q 1 Name the force due to which a body performs circular motion.  
Mark (1)
- Q 2 What is the nature of gravitational force?  
Mark (1)
- Q 3 What is the numerical value of gravitational constant?  
Mark (1)
- Q 4 Define thrust.  
Mark (1)
- Q 5 Name the force experienced by the body when it is immersed in a liquid.  
Mark (1)
- Q 6 What do you mean by the weight of the body?  
Mark (1)
- Q 7 What is the acceleration of free fall?  
Mark (1)
- Q 8 What is the weight of an object on moon?  
Mark (1)
- Q 9 Why the cutting edge of a knife should be as sharp as possible?  
Mark (1)
- Q 10 Iron nails sinks in water.Why?  
Mark (1)
- Q 11 Explain, why the value of 'g' is greater at poles than at equator.  
Mark (1)
- Q 12 Why does a truck or motor-bus has much wider tyres?  
Mark (1)
- Q 13 What do you mean by force of buoyancy?  
Mark (1)
- Q 14 State Archimedes' principle.  
Mark (1)
- Q 15 The density of gold is  $19.3 \times 10^3 \text{ kg/m}^3$ . Find its relative density.  
Mark (1)

Q 16 Give any two applications of Archimedes principle.

Mark (1)

Q 17 What is a hydrometer? What is the principle of hydrometer?

Mark (1)

Q 18 Explain why moon moves around earth.

Marks (2)

Q 19 A stone is dropped from the top of a building of height 45 m. Calculate its velocity , when it strikes the ground.(Take  $g=10 \text{ m/s}^2$ )

Marks (2)

Q 20 A body is thrown up with a velocity of 29.4m/sec.Find the time taken by the body to reach its highest point? After how much time the body will come back on the ground?

Marks (2)

Q 21 If the earth attracts an apple, why does not an apple attracts the earth ?

Marks (2)

Q 22 A sheet of paper fall slower than the one that is crumpled into ball. Why?

Marks (2)

Q 23 The mass of Seema is 45kg. What will be her weight on the surface of the earth? What will be her weight on the surface of the moon?

Marks (2)

Q 24 Why fluid exert pressure ?How is the pressure transmitted in a fluid?

Marks (2)

Q 25 State the importance of the universal law of gravitation.

Marks (2)

Q 26 State Newton's Law of Gravitation. Why Newton's Law of Gravitation is known as Universal Law of Gravitation?

Marks (2)

Q 27 What are two main factors on which the buoyant force depends?

Marks (2)

Q 28 Why does an iron nail sink in water but a wooden cork float on water?

Marks (2)

Q 29 An object of volume  $V$  is immersed in a liquid of density  $\rho$ . Calculate the magnitude of buoyant force acting on the object due to liquid.

Marks (2)

Q 30 What is buoyant force? Write any two applications of Archimedes principle.

Marks (2)

Q 31 A student immerses a block into different liquids. Is the buoyant force acting on the block same for all the liquids?

Marks (2)

Q 32 A plastic ball is released under water. It comes to the surface of the water and doesn't sink in it. Explain the reason.

Marks (2)

Q 33 Define pressure. A force of 200 N is applied on an object of area  $10 \text{ m}^2$ . Find the pressure exerted on the body.

Marks (2)

Q 34 Why are the straps of school bags made wider?

Marks (2)

Q 35 What are the factors that affect buoyant force exerted by a liquid on a solid when it is immersed in the liquid?

Marks (2)

Q 36 In what direction does the buoyant force on an object due to a liquid act? What is the relation of buoyant force with the density of a fluid?

Marks (2)

Q 37 Does Archimedes principle hold true for a satellite moving in a circular orbit? Explain.

Marks (2)

Q 38 Mohan threw a pointed dart (arrow) at the dartboard. It stuck to the board, but when he threw a blunt dart, it fell down after hitting the board. Why?

Marks (2)

Q 39 An object is immersed in different liquids. Is same buoyant force acts on an object due to all liquids?

Marks (2)

Q 40 A ball is thrown vertically upwards with a velocity of 49 m/s. Calculate

(a) The maximum height to which it reaches

(b) The total time it takes to return to the surface of the earth

Marks (3)

Q 41 What is the force of gravitation between the earth and the sun, given that the mass of the earth =  $6 \times 10^{24} \text{ kg}$  and of the sun =  $2 \times 10^{30} \text{ kg}$ ? The average distance between them is  $1.5 \times 10^{11} \text{ m}$ .

Marks (3)

Q 42 Two objects of masses  $m_1$  and  $m_2$  exert a force  $F$  on each other when they are separated by a distance,  $r$ . What happens when

(i) Mass  $m_1$  is doubled,

(ii) The distance between them is halved?

Marks (3)

Q 43 Explain why iron nail sinks in water, but a ship made up of iron floats?

Marks (3)



Q 44 Distinguish between g and G.

Marks (3)

Q 45 A body of weight 600 N rests on the floor of a lift. If the lift begins to fall freely under the gravity, what is the force with which the body presses on the floor?

Marks (3)

Q 46 How can you calculate the value of acceleration due to gravity?

Marks (3)

Q 47 How one can calculate the value of acceleration due to gravity on the surface of the moon?

Given :  $G = 6.7 \times 10^{-11} \text{ Nm}^2 / \text{kg}^2$ , Mass of moon =  $7.4 \times 10^{22} \text{ kg}$ ,  
Radius of moon = 1740 km

Marks (3)

Q 48 If the planet existed whose mass and radius both were half those of the earth, then what will be the acceleration due to gravity at its surface?

Marks (3)

Q 49 To estimate the height of a bridge over a river, a stone is dropped freely in the river from the bridge. The stone takes 2 seconds to touch the water surface in the river. Calculate the height of the bridge from the water level. ( $g = 9.8 \text{ m/s}^2$ ).

Marks (3)

Q 50 How much would a 70 kg man weigh on the moon? What would be his mass on the earth and on the moon? (Acceleration due to gravity on the moon =  $1.63 \text{ m/s}^2$ )

Marks (3)

Q 51 When a spherical ball is suspended with an iron string, the length of the string increases. However, the length of the string decreases when the ball is completely immersed in water. Why? Explain.

Marks (3)

Q 52 How do a submarine sink and float on water?

Marks (3)

Q 53 Calculate the density of iron if an iron cylinder of radius 14mm and length 80mm weighs 369.6g.

Marks (3)

Q 54 In which case is the depression in the cushion more – when a person stands on it or when he lies down on it? Explain.

Marks (3)

Q 55 Give reasons for the following.

1. A plastic block released under water never stays under water but comes to the surface of the water.
2. Sleepers are laid below the rails.

Marks (3)

Q 56 State and explain the Universal law of Gravitation.

Marks (5)

Q 57 A ball is dropped from the top of a tower 100m high and at the same time another ball is projected vertically upwards from the ground with a velocity of 25m/sec. Calculate where and when the two stones will meet. Take  $g=10\text{m/s}^2$ .

Marks (5)

Q 58 How will you calculate relative density of a cork using Archimedes's Principle?

Marks (5)

Q 59 (i) How do fishes float in water?

(ii) Write the conditions that takes place when a solid is immersed in a fluid.

Marks (5)

Q 60 The force on a phonogram needle of cross-section of radius of 0.01cm, is 1.5N. Find the pressure it exerts on the record in

(i) Pa

(ii) atm

Marks (5)

Q 61 What do you understand by relative density? What is the unit of relative density?

Manoj have a metal block of dimension 25cm x 10cm x 5cm. Now, if the mass of the block is 5kg, then calculate the greatest and least pressure exerted by the block?

Marks (5)

Q 62 A piece of iron is totally immersed in water. If its density is  $7.8 \times 10^3 \text{ kg/m}^3$  and volume is  $10^{-4} \text{ m}^3$  then calculate

(i) The upthrust

(ii) Apparent weight of iron piece in water

Marks (5)

### Most Important Questions

Q 1 An object dropped from a height always fall towards earth. Why?

Q 2 Weight of an object on earth and moon is different. Why?

Q 3 In your daily life you experience force of gravitation. Give some examples,

Q 4 What is gravitation?

Q 5 State Newton's law of motion.

Q 6 What do you understand by centripetal force?

Q 7 What do you understand by gravitational force?

Q 8 What do you understand by free fall of an object?

Q 9 How does the force of gravitation between two objects change on reducing the distance to half?

Q 10 If we neglect the friction of air then all the objects fall with the same speed. Why does a heavy object do not fall faster?

Q 11 If the earth attracts moon, why doesn't it move towards earth?

Q 12 Every thing exert force on the other. It means that we also exert force on each other. Is this true? If yes, then why we does not feel this force?

Q 13 When my servant bring water in a pitcher, she place a thick piece of cloth on her head before placing pitcher. Why?

Q 14 Moon exert gravitational force on earth. Give one example.

Q 15 State universal law of gravitation.

Q 16 Find the gravitational force acting between earth and an object of 2 kg.

Q 17 What do you mean by free fall?

Q 18 Mass of an object is 20kg. What is its weight of

(i) Earth.

(ii) Moon.

Q 19 What do you understand by thrust?

Q 20 What do you understand by pressure?

Q 21 What is the acceleration for free fall?

Q 22 Acceleration due to gravity is same for all objects. But a book falls faster than a paper. Why?

Q 23 Ball thrown up vertically reaches to maximum height in 6 s. Find

(a) The velocity with which it was thrown up.

(b) The maximum height it reaches.

(c) Its position after 4 s.

Q 24 Rahul took a plastic ball. He pushed it deep in a tank full of water. As soon as he released the ball, the ball comes on the surface of water. Why?

Q 25 Tyres of truck are wider than that of a car. Why?

Q 26 I have a book having dimensions 40cmx30cmx4cm and mass 500g. Find the pressure exerted by it on the table.

(i) When book lies down on the table.

(ii) When book is kept on the table such that it covers 30cmx4cm area of the table.

Q 27 State equations of motion for free fall.

Q 28 A stone is released from the top of a building of height 19 m. Calculate its final velocity.

Q 29 Every thing exert force on the other. It means that we also exert force on each other. Is this true? If yes, then why we does not feel this force?

Q 30 When my servant brings water in a pitcher, she place a thick piece of cloth on her head before placing pitcher. Why?

Q 31 What happens to the force between two objects, if

(i) Mass of one object is tripled?

(ii) Distance between the objects is doubled?

(iii) Masses of both objects are doubled?

Q 32 What do you understand by buoyant force?

Q 33 Give two examples of buoyancy.

Q 34 Give the conditions for an object to float or sink.

Q 35 The volume of a substance of 50 g, is  $20 \text{ cm}^3$ . The density of water is  $1 \text{ g-cm}^{-3}$ . Will the substance float or sink? What will be the weight of water displaced by the substance?

Q 36 State Archimedes' principle.

Q 37 Write some applications of Archimedes' principle.

Q 38 What is relative density?

Q 39 Why we measure the relative density of a substance?

Q 40 Relative density of silver is 11 and the density of water is  $103 \text{ Kg-m}^{-3}$ . What is the density of silver in S.I. Units?

Q 41 How will you detect that the milk is pure or impure?

Q 42 How will you conclude that a particular sample of water is pure?

Q 43 How does a submarine sinks and float?

Q 44 Show that, if the weight of fluid displaced by the object is more than its weight then it will sink in the fluid.

Q 45 An iron piece weighs 600 g in air and 400 g in water. Find volume of the solid.

Q 46 How an air balloon rises up?

## 11. Work and Energy

Q 1 What is energy of a body?

Mark (1)

Q 2 Define kinetic energy.

Mark (1)

Q 3 What is potential energy?

Mark (1)

Q 4 What will be the work done by a force if displacement of the body is zero?

Mark (1)

Q 5 When is work done on a body positive?

Mark (1)

Q 6 Can energy be converted from one form to another?

Mark (1)

Q 7 Define power.

Mark (1)

Q 8 What will be the new kinetic energy of a body if its velocity is doubled?

Mark (1)

Q 9 What will be the potential energy of an object of mass 5 kg kept at a height of 10 metres from the ground? Take  $g = 10 \text{ m/s}^2$ .

Mark (1)

Q 10 A green plant is carrying out photosynthesis. What is the work done in this process?

Mark (1)

Q 11 What is mechanical energy of an object?

Mark (1)

Q 12 How we can define one watt?

Mark (1)

Q 13 Give a mathematical expression for the work done when a force is acting on an object in the direction of its displacement.

Mark (1)

Q 14 How average power can be calculated?

Mark (1)

Q 15 When a ball is thrown in upward direction, work is done by the force of gravity. When a ball comes down freely towards the earth, in this case too work is done by the force of gravity. What is the difference in the nature of work done in the two cases?

Marks (2)

Q 16 What is the energy change involved when a battery lights a bulb?  
Marks (2)

Q 17 A constant force of 10N displaces a body through 5 m. Find the work done by the force.  
Marks (2)

Q 18 What will be the work done if a stone of mass 2 kg is raised through a height of 10cm?( take  $g=10\text{m/s}^2$ )  
Marks (2)

Q 19 What are the conditions needed for work to be done?  
Marks (2)

Q 20 An electric bulb of 60W is used for 5 hours a day. Calculate the energy consumed in one day by it.  
Marks (2)

Q 21 An object of mass 10kg is moving with a speed of 4 m/s. What is the kinetic energy of the object?  
Marks (2)

Q 22 An object of mass 10kg is at a certain height above the ground. If the potential energy of the object is 200J , find the height of the object from the ground?  
Marks (2)

Q 23 A person is holding a heavy bag on his head for 20 minutes and gets tired. Has he done some work or not? Explain.  
Marks (2)

Q 24 If a particle falls through a height; its potential energy decreases. Does this violate the law of conservation of energy? Explain why?  
Marks (2)

Q 25 What is the work done by the force of gravity on a satellite moving round the earth?  
Marks (2)

Q 26 An artificial satellite orbiting the earth in very thin atmosphere loses its energy gradually due to dissipation against atmospheric resistance, however small. So, its speed should be decreased, but actually its speed increases progressively as it comes closer and closer to the earth. Why?  
Marks (3)

Q 27 Ashish's mother carried two suitcases of total weight 200N to three stairs at a height of 10m and then pushes it with a constant speed to a distance of 35m by applying a horizontal force of 50N. How much work does Ashish's mother do on the suitcases during the entire motion?  
Marks (3)

Q 28 A ball of mass 2kg is kept on a tower of height 30m. Find its potential energy at this point. If it is allowed to fall freely, find its kinetic energy when it just touches the ground?  
Marks (3)

Q 29 A body of mass 5 kg is kept on a table. If it is displaced by a force of 10N by 2 m on the table on the same horizontal line, find the work done by the gravitational force.

Marks (3)

Q 30 What is law of conservation of energy?

Marks (3)

Q 31 A man of mass 50kg climbs a tower of height 45m in 5 seconds with the help of a rope. Find the power of the man?

Marks (3)

Q 32 What will be the work done to stop a moving cycle of mass 30kg which is moving with speed 54km/hr ?

Marks (3)

Q 33 A freely falling body stops when it hits the ground. What happens to its kinetic energy?

Marks (3)

Q 34 Discuss the energy changes that take place in an oscillating pendulum. Why does the pendulum come to rest? What happens to its energy after it stops oscillating?

Marks (3)

Q 35 A bulb is lighted when it is connected to the battery. Explain the energy changes that take place in the process.

Marks (3)

Q 36 A car of mass 500kg accelerates uniformly from rest to a velocity of 36km/h in 10 seconds. What is the acceleration, gain in kinetic energy and average power of the engine during this period, if friction is neglected?

Marks (3)

Q 37 A vehicle weighing 800 kg and travelling with 40 m/s is decelerated uniformly and comes to rest after covering a distance of 50 m. What is the force exerted on it by the brakes? What is the work done by the brakes?

Marks (5)

Q 38 If in an office, 10 tubes of 40W, 5 fans of 75W and 2 ACs of 1500W are used for 8 hours a day. Calculate the energy consumed per day in commercial units of energy.

Marks (5)

Q 39 Prove that the kinetic energy of a body moving with speed  $v$  is equal to  $(1/2)mv^2$ .

Marks (5)

Q 40 What will be the work done to increase the speed of a bike from 18km/h to 54 km/hr if the mass of the car is 100kg?

Marks (5)

Q 41 Define power. What is the SI unit of power? An electric device consumes 21.6 J of electrical energy in 4 minutes and the other electrical device consumes 35.4 J of energy in 6 minutes. Which device has more power?

Marks (5)

Q 42 What is the law of conservation of energy? Give two daily life examples of law of conservation of energy.

A ball of mass 4 kg is thrown vertically upwards with a velocity 20 m/s. Find its kinetic energy, potential energy and total energy at a point 15 m above the ground.

Marks (5)

Q 43 An object of mass 100 kg is raised to a height of 10 m above the ground. What is the potential energy of the object at this height? If the object is allowed to fall freely, what will be its kinetic energy after falling a distance of 4 metres? (Take  $g = 10 \text{ m/s}^2$ )

Marks (5)

Q 44 A car of mass 2500 kg is lifted up a distance of 50 m by a crane in 2 minutes. Another crane can lift the same car up to the same height in 3 minutes. What is the power applied by each crane? Do the cranes consume the same or different amount of fuel? Neglect power dissipation against friction.

Marks (5)

Q 45 Define energy. Name the physical quantity that has same unit as that of energy. Four electrical appliances, each rated 500 W, run for 10 hours. Calculate the energy in kWh and joules.

Marks (5)

Q 46 Define kinetic energy. What is the kinetic energy of an object of mass 'm' moving with velocity? Also, calculate the work done on a bicycle of mass 20 kg to increase its speed from  $2 \text{ ms}^{-1}$  to  $3 \text{ ms}^{-1}$ .

Marks (5)

#### Most Important Questions

Q 1 When work done is positive on a body?

Q 2 What will be the new kinetic energy of a body if its velocity is doubled?

Q 3 A constant force of 10N displaces a body through 5 m. Find the work done by the force?

Q 4 What will be the work done if a stone of mass 2 kg is raised through a height of 10cm?

Q 5 An object of mass 10kg is moving with speed 4 m/sec. What is the kinetic energy of the object?

Q 6 An object of mass 10kg is at a certain height above the ground. If the potential energy of the object is 200J. Find the height of the object from the ground.

Q 7 A person is holding a heavy bag on his head for 20 minutes and gets tired. Has he done some work or not? Explain.

Q 8 A body of mass 5 kg is kept on a table. If it is displaced by a force of 10N by 2 m on the table on the same horizontal line, find the work done by the gravitational force.

Q 9 What is law of conservation of energy?

Q 10 A man of mass 50kg climbs a tower of height 45m in 5 seconds with the help of a rope. Find the power of the man.



Q 11 If a particle falls through a height; its potential energy decreases. Does this violate the law of conservation of energy? Explain why?

Q 12 A ball of mass 2kg is kept on a tower of height 30m. Find its potential energy at this point. If it is allowed to fall freely, find its kinetic energy when it just touches the ground.

Q 13 What is the work done by the force of gravity on a satellite moving round the earth?

Q 14 What will be the work done to stop a moving cycle of mass 30kg which is moving with speed 54km/hr ?

Q 15 A freely falling body stops when it hits the ground. What happens to its kinetic energy?

Q 16 Prove that the kinetic energy of a body moving with speed  $v$  is equal to  $\frac{1}{2} mv^2$ .

Q 17 What will be the work done to increase the speed of a bike from 18km/h to 54 km/hr if the mass of the car is 100kg?

Q 18 If in an office, 10 tube of 40w, 5 fan of 75w and 2 Ac of 1500w are used for 8 hours a day. Calculate the energy consumed per day in commercial units of energy.

Q 19 An electric bulb of 60w is used for 5 hours a day. Calculate the energy consumed in one day by the bulb.

## 12. Sound

Q 1 What are the uses of SONAR technique?

Mark (1)

Q 2 What does 'SONAR' stand for ?

Mark (1)

Q 3 Which part of the ear turns pressure variations into electrical signals?

Mark (1)

Q 4 What is intensity of sound?

Mark (1)

Q 5 Why sound wave is called longitudinal wave?

Mark (1)

Q 6 What is a sound?

Mark (1)

Q 7 Why sound waves are called mechanical waves?

Mark (1)

Q 8 What is a crest and a trough in a wave?

Mark (1)

Q 9 Can sound wave travel through vacuum?

Mark (1)

Q 10 What is amplitude of a wave?

Mark (1)

Q 11 What is characterized by the amplitude of the wave?

Mark (1)

Q 12 What is characterized by the frequency of the sound wave?

Mark (1)

Q 13 What is reverberation?

Mark (1)

Q 14 What is the audible range of the average human ear?

Mark (1)

Q 15 What should be the minimum distance between a sound source and reflector for a distinct echo?

Mark (1)

Q 16 What is a wave?

Mark (1)

Q 17 Explain why the ceilings of concert halls and conference halls are made curved?

Mark (1)

Q 18 What is law of reflection in sound?

Mark (1)

Q 19 Priya clapped her hand near a cliff and heard the echo after 5 seconds. If the speed of sound is 330 m/sec, then find the distance of the cliff from Priya?

Marks (2)

Q 20 What are 'infrasonic' and 'ultrasonic'?

Marks (2)

Q 21 Calculate the time in which a tuning fork of frequency 234 Hz completes 26 vibrations.

Marks (2)

Q 22 We hear thunder sound a few seconds after the flash is seen even though they occur simultaneously. Why?

Marks (2)

Q 23 A sound wave has a frequency of 1500 Hz and wavelength 25 cm. How long will it take to travel 3 km?

Marks (2)

Q 24 Why and how is reverberation removed in an auditorium or a big hall?

Marks (2)

Q 25 State Laws of Reflection of Sound

Marks (2)

Q 26 Harry standing 440 m away from a wall fired a gun and heard its echo 2 s later. How is an echo formed? Calculate the velocity of sound in air.

Marks (2)

Q 27 What is the frequency of an oscillating body?

The frequency of a source is 80 Hz. Find the number of times it vibrates in a minute.

Marks (2)

Q 28 Explain how ultrasounds help to detect cracks and flaws in metal blocks.

Marks (3)

Q 29 Define time period of sound wave. What is its SI unit? How is it related with frequency?

Marks (3)

Q 30 Explain, how compressions and rarefactions are produced in air near a source of sound.

Marks (3)

Q 31 How does sound reaches our ears?

Marks (3)

Q 32 What will happen to the loudness of a sound wave if its amplitude is doubled? Name a unit of sound. Is loudness affected by change in frequency?

Marks (3)

Q 33 How do sound waves propagate?

Marks (3)

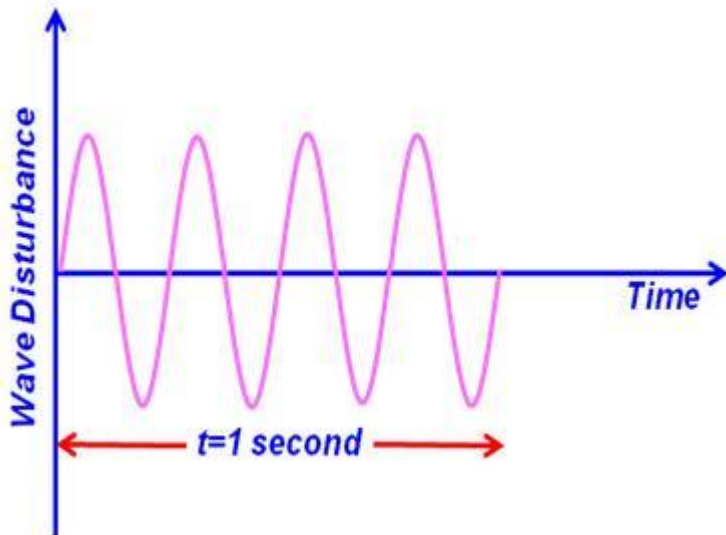
Q 34 Are the particles of the medium dragged along with the wave as sound wave propagates through the medium? In which medium—solid, liquid or gas, does the sound wave travel fastest?

Marks (3)

Q 35 Find the distance travelled by a sound wave of frequency 20 KHz, wavelength 1.7 cm in 10 s.

Marks (3)

Q 36 Define frequency of a sound wave. What is its SI unit and how is it related to pitch? What is the frequency of the wave shown below?



Marks (3)

Q 37 What do you understand by frequency of a sound wave? What is the relationship between velocity of sound wave and its frequency?

The wavelength of sound emitted by a source is  $1.25 \times 10^{-2}$  m. If the velocity of the sound is 342 m/s, what is the frequency of the sound?

Marks (3)

Q 38 Explain that sound is a mechanical wave. How do sound waves travel in different media? What is the approximate speed of sound in air?

Marks (3)

Q 39 What is the relevance of amplitude and of frequency of a vibrating body to sound produced by it?

Marks (3)

Q 40 Define echo. A sonar echo takes  $2.2s_0$  to return from a whale. Find the distance of the whale below the surface of the water.

[Given the speed of sound in sea water at  $25^\circ C = 1533m/s$ ]

Marks (3)

Q 41 Define the terms.

1. Audible range of normal human ear
2. Ultrasonics
3. Infrasonics

When vibration is a necessary condition for production of sound, then why the vibrating pendulum does not produce sound?

Marks (3)

Q 42 Define speed of sound. Name the factors on which the speed of sound depends. Why the intensity of sound of a speaker is larger immediately after rain?

Marks (3)

Q 43 Explain The structure of human ear.

Marks (5)

Q 44 What is an echo? Calculate the minimum distance in air required from a surface reflecting sound to hear an echo at  $20^\circ C$ .

Marks (5)

Q 45 What is SONAR stands for? For what purpose it is used?

Suppose a sonar apparatus is attached to the ship and sends ultrasonic waves in the sea. When the waves reach the bottom of the sea, they are reflected back. If the ultrasonic waves take 6 seconds to travel from the ship to the bottom of the sea and back to the ship, then what will be the depth of the sea? [speed of sound in water =  $1500ms^{-1}$ ].

Marks (5)

Q 46 Explain how defects in a metal block can be detected using ultrasound.

Marks (5)

Q 47 Discuss SONAR.

Marks (5)

Q 48 Explain the working and applications of SONAR.

Marks (5)

Q 49 Rajan and Mohan are standing at opposite ends of an aluminium rod. Rajan strikes the end of the rod with a stone. Calculate the ratio of times taken by the sound waves in air and in aluminium to reach Mohan. [Velocity in aluminium =  $6420m/s$ ]

Marks (5)

Q 50 Explain the statement 'Wave transfers energy and not the matter' with the help of an activity.

Marks (5)

Q 1 Fill in the blanks:

1. Sound is produced due to \_\_\_\_\_ of different objects.
2. Sound travels as a \_\_\_\_\_ wave through a material medium.
3. Sound travels as successive \_\_\_\_\_ and \_\_\_\_\_ in the medium.

Q 2 Fill in the blanks:

1. The distance between two consecutive compressions or two consecutive rarefactions is called the \_\_\_\_\_.
2. The change in the density or pressure from a maximum value to minimum and then back to the maximum is called an \_\_\_\_\_.
3. The number of periodic oscillations per unit time is called the \_\_\_\_\_ of the sound wave.

Q 3 Fill in the blanks:

1. The loudness of sound is proportional to the \_\_\_\_\_ of the amplitude of the vibration.
2. The speed of sound \_\_\_\_\_ as it moves from solid to gaseous state.
3. In any medium the speed of sound \_\_\_\_\_ with increase in temperature.

Q 4 Explain with an example how sound is produced?

Q 5 Describe with the help of a diagram how sound propagates through air?

Q 6 What do you understand by the terms compression and rarefaction?

Q 7 Explain with example to show that sound cannot travel through vacuum?

Q 8 What are longitudinal waves?

Q 9 Sound waves are longitudinal. Prove?

Q 10 What are the main characteristics of sound waves?

Q 11 Explain crest and trough with the help of the graphical representation of sound wave?

Q 12 Explain the terms Wavelength and Amplitude?

Q 13 Explain the difference between Frequency and Pitch of a sound wave?

Q 14 Explain time period with respect to a sound wave?

Q 15 Frequency of a wave motion is 250 Hz. What is its time period?

Q 16 What do you mean by an Oscillation of a sound wave?

Q 17 Derive a relation between speed, frequency and wavelength of a sound wave?

Q 18 A sound wave has a frequency of 2 kHz and wavelength 40 cm. Calculate its speed?

Q 19 Calculate the wavelength of a sound wave whose frequency is 220 Hz and speed is 440 m/s in a given medium?

Q 20 Calculate a) the wavelength b) the time period of a tuning fork of frequency 512 Hz that is set to vibrate. Velocity of sound in air is 320 m/s.

Q 21 What is the wavelength of sound waves produced in air by a vibrating tuning fork whose frequency is 256 Hz when the velocity of sound in air is  $330 \text{ m s}^{-1}$ ?

Q 22 Why the flash of lightning due to collision of clouds is seen much before the thunder, although both occur simultaneously?

Q 23 What do you understand by speed of sound? How does it depend upon the medium and temperature?

Q 24 What is reflection of sound? Explain the laws of reflection with respect to sound?

Q 25 What is Echo. Explain the conditions that have to be satisfied to hear an echo?

Q 26 Why do echoes produced in an empty auditorium usually decrease when it is full of audience?

Q 27 What is reverberation?

Q 28 A girl clapped his hands near a cliff and heard the echo after 5 s. What is the distance of the cliff from the person if the speed of the sound, velocity of sound in air is taken as 346 m/s?

Q 29 A boy fires a gun and hears the echo 2 seconds later. If he is 480 m away from a wall, calculate the velocity of sound in air?

Q 30 Explain the term audible range, Infrasonic frequencies, Ultrasonic frequencies?

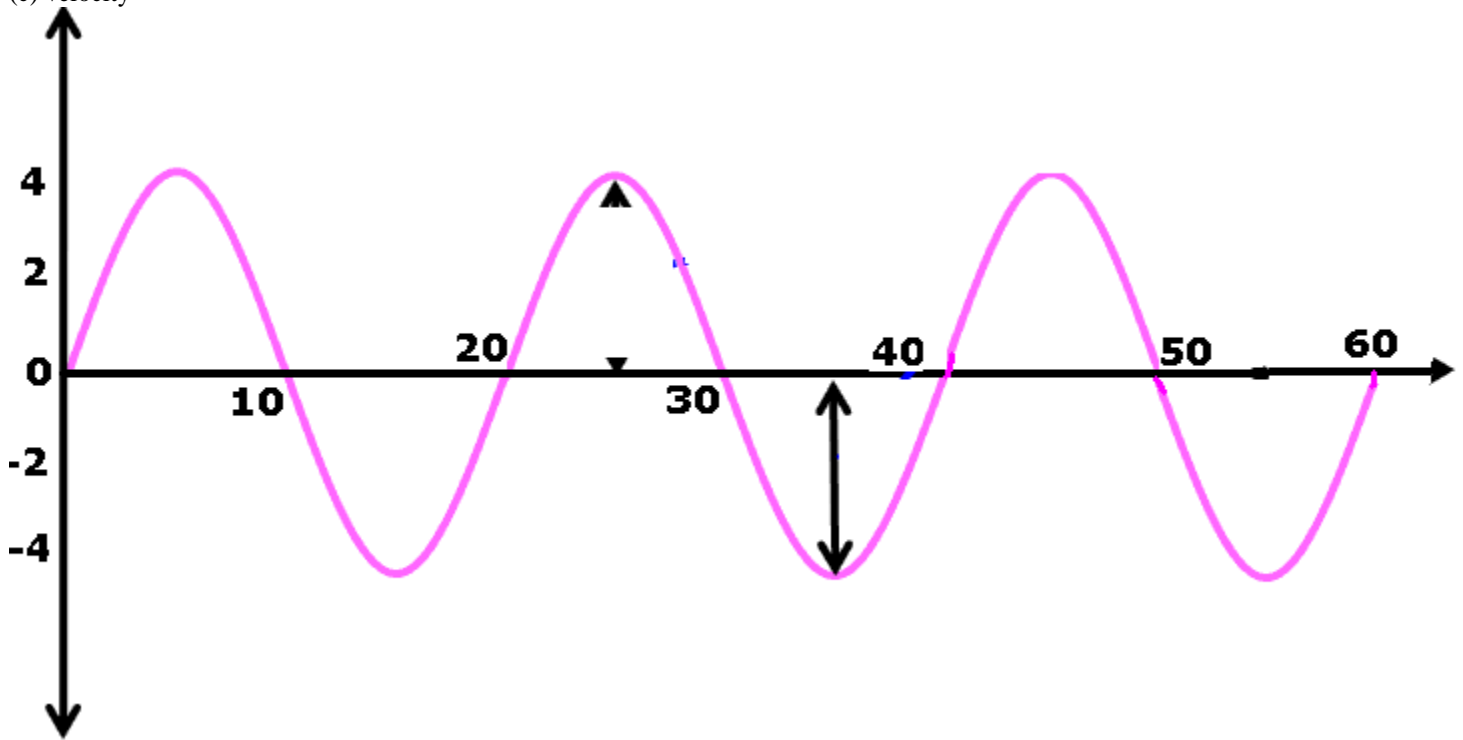
Q 31 Explain how is the principle of echo used by

- (a) The bat during its flight at night.
- (b) The dolphin to locate small fish as its prey.

Q 32 Figure shows a waveform of frequency 50 Hz in a string. The numbers in the string represent distance in centimeter. For this wave motion, find:

- (a) wavelength
- (b) amplitude, and

(c) velocity



Q 33 What is ultrasound? Give some important applications of ultrasound?

Q 34 How Ultrasound is used to detect defects in metals?

Q 35 What is SONAR?

Q 36 Explain the working of SONAR.

Q 37 Suppose a ship sends a pulse of ultrasound and receives an echo 0.2 seconds later. If the speed of sound in water is 1000 m/s calculate its depth?

Q 38 With the help of a diagram, explain the structure of a human ear?



### 13. Why do we Fall ill

- Q 1 Write the name of the organism that causes kala-azar.  
Mark (1)
- Q 2 What is a disease?  
Mark (1)
- Q 3 Write one example of both infectious and non-infectious disease?  
Mark (1)
- Q 4 Which type of disease is most dangerous for the health?  
Mark (1)
- Q 5 What happens if the body is suffering from a disease?  
Mark (1)
- Q 6 What are the social aspects that are necessary for individual health?  
Mark (1)
- Q 7 Which organism is responsible for causing malaria?  
Mark (1)
- Q 8 What are vectors?  
Mark (1)
- Q 9 Define health.  
Mark (1)
- Q 10 Name four diseases for which vaccines are available.  
Marks (2)
- Q 11 What do you understand by the term 'sleeping sickness'? Give it's symptoms.  
Marks (2)
- Q 12 How does community health depend on personal health?  
Marks (2)
- Q 13 How does AIDS virus spread?  
Marks (2)
- Q 14 Why the making of antiviral medicines is harder than antibacterial?  
Marks (2)
- Q 15 What is the difference between acute and chronic diseases?  
Marks (2)

Q 16 Why penicillin affects only bacteria not human cells?

Marks (2)

Q 17 Differentiate between health and disease.

Marks (2)

Q 18 Define 'physiotherapy'. Why it is suggested to go to physiotherapist, if a person is suffering from joint pain?

Marks (2)

Q 19 Overall attendance of Geeta's class is very low because many of her classmates are suffering from an infectious disease. Give four precautions that Geeta can take to reduce the chance of contracting such an infectious disease.

Marks (2)

Q 20 In which of the following conditions, do you think the long term effects on health are likely to be most unpleasant if a person gets:

- Jaundice
- Cold
- Acne

Give reasons in support of your answer.

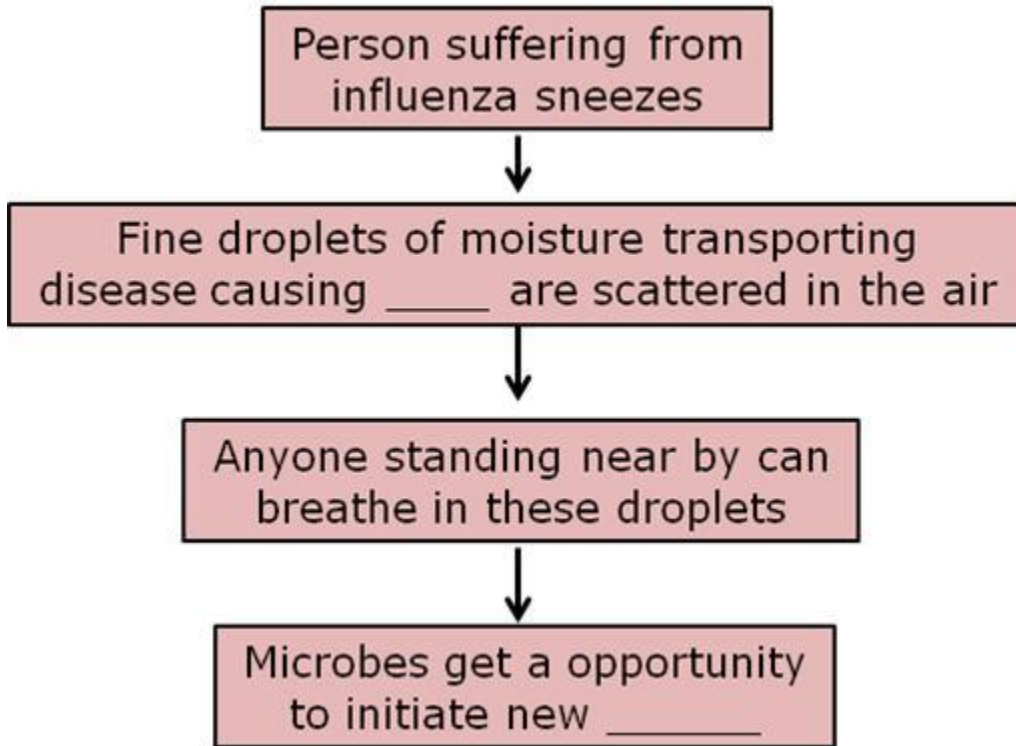
Marks (2)

Q 21 Fill in the missing words in the given table:

<b>S.No.</b>	<b>PATHOGEN</b>	<b>DISEASES CAUSED</b>
1.	VIRUS	Mumps
2.		Leprosy
3.	PROTOZOA	Giardiasis
4.		Athlete's foot

Marks (2)

Q 22 Fill in the key words in the given flow chart:



Marks (2)

Q 23 (a) Define the terms 'Acute' and 'Chronic' disease.

(b) Which disease out of the above two causes more harm to our body? Why?

Marks (2)

Q 24 (a) Under which of the given situations, a student is most likely to fall sick when:

- He is taking an examination.
- He travels continuously for two days.
- His friend is suffering from measles.

Give reasons in support of your answer.

Marks (2)

Q 25 (a) Name at least three vaccines generally available at health centers (except MMR vaccine).

(b) Expand MMR vaccine.

Marks (2)

Q 26 What is the general way to prevent infections?

Marks (3)

Q 27 Give the symptoms of Hepatitis?

Marks (3)

Q 28 Define the basic of principle of immunisation.

Marks (3)

Q 29 Explain how HIV-AIDS virus affects and damages our body?

Marks (3)

Q 30 Name the causal organisms of Diarrhoea. Write its symptoms and preventive measures.

Marks (3)

Q 31 What is immunisation? Who discovered it? Name the disease against which it was discovered.

Marks (3)

Q 32 How does malaria spread? How is it treated?

Marks (3)

Q 33 a) What is a vector? Give one example?

b) How does malaria spread? What are the symptoms of the disease?

Marks (3)

Q 34 a) It has been diagnosed that Pintu suffers from Japanese encephalitis. Which organ of Pintu's body is affected?

b) How are bacterial antibiotics effective in the treatment of some diseases?

c) Will they help in curing Pintu's disease? Why?

Marks (3)

Q 35 a) Sonu is ill with jaundice, Monu is getting acne and Tina is getting lice in her hair. Who do you think will suffer with unpleasant long-term effects on his/her health?

b) Write one example each of infectious and non-infectious disease?

Marks (3)

Q 36 a) Reema's body is infected with some disease. Her immune system is activated and in response recruits many cells to kill the microbes. She is feeling irritation and swelling. Why?

b) Reema's mother is feeling pain and bleeding in the stomach. She is suffering from which disease?

c) Reema's brother is suffering from whooping cough. He should be advised to take which vaccine?

Marks (3)

Q 37 a) Why penicillin affects only bacteria and not human cells?

b) Why is making of antiviral medicines harder than antibacterial?

Marks (3)

Q 38 Discuss with the help of suitable examples, three ways in which microorganisms can find entry into human body.

Marks (3)

Q 39 a) Discuss briefly the principle of immunisation.  
b) Mention any four diseases that can be prevented by immunisation.

Marks (3)

Q 40 a) It was diagnosed that Pinky is suffering from kala-azar. Which organism has affected Pinky's body?

b) What is the difference between acute and chronic diseases?  
c) Which type of disease is more dangerous for the health?

Marks (3)

Q 41 a) Define physiotherapy. Why it is suggested to go to physiotherapist, if a person is suffering from joint pain?  
b) What are pathogens? Name four types of pathogens.

Marks (3)

Q 42 (a) Name the causal organism of typhoid.  
(b) How does typhoid spread? What are the symptoms of the disease?

Marks (3)

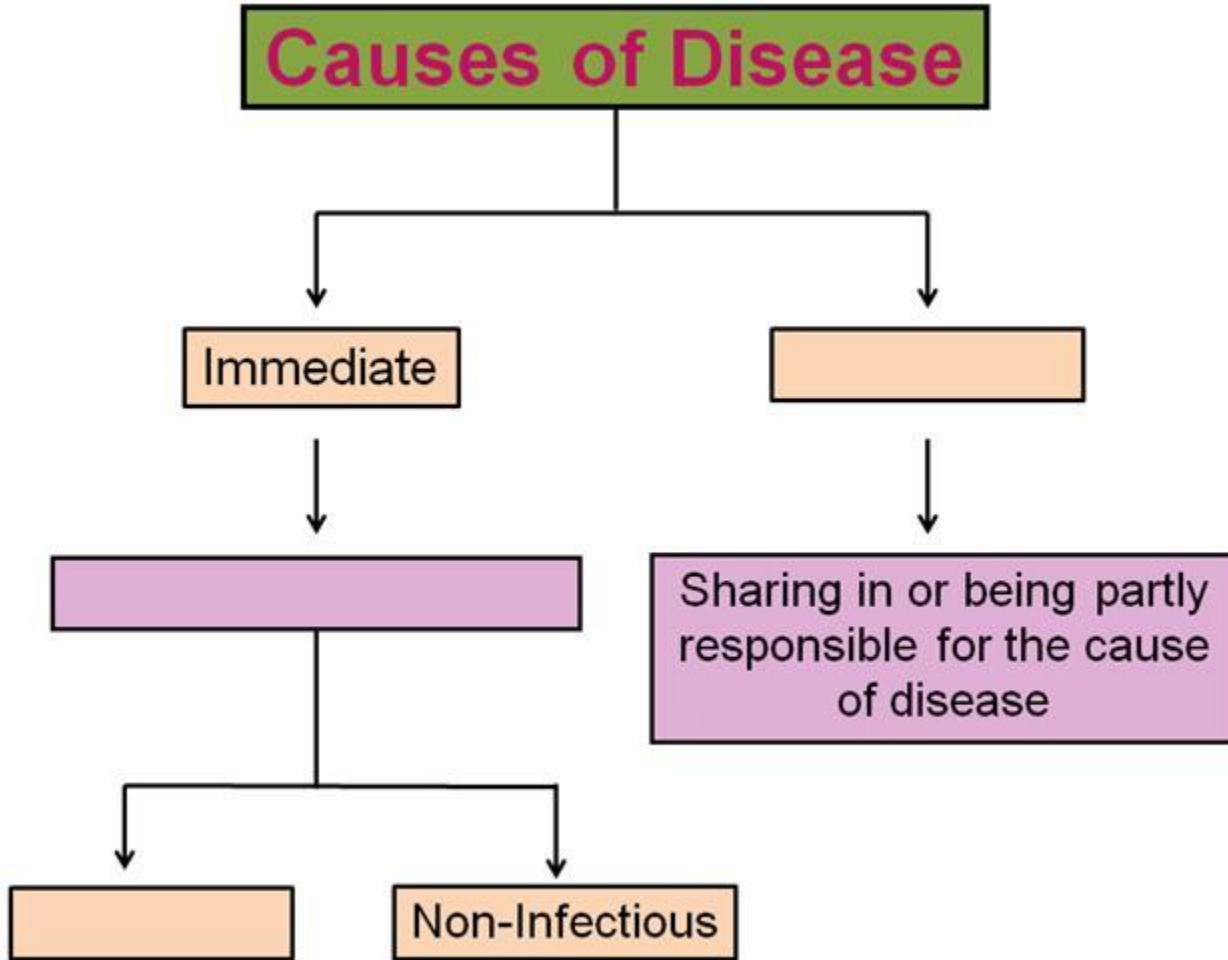
Q 43 (a) Chintu is suffering from effortless vomiting and watery diarrhea. What is the condition known as?  
(B) Mention two precautions to avoid it.

Marks (3)

Q 44 (a) Rohan is diagnosed with tuberculosis. Which vaccine should be given for providing considerable protection against this disease?  
(b) Give a brief account on pulse polio programme.

Marks (3)

Q 45 Fill in the key words in the given flow chart:



Marks (3)

Q 46 Fill in the missing words in the given table:

Disease	Causative agent
Acne	
Sleeping sickness	
	<i>Leishmania</i>

Marks (3)

Q 47 Fill in the missing words in the given table:

Disease	Category of Pathogen	Causative agent
Typhoid		<i>Salmonella typhi</i>
Malaria	Protozoa	
	Bacteria	<i>Mycobacterium</i>
	Virus	HIV
Elephantiasis	Round worm	
Whooping cough		<i>Bordetella pertussis</i>

Marks (3)

Q 48 (a) Justify the statement “Infectious diseases are also called communicable diseases”.

- (b) How penicillin affects bacteria?  
 (c) Expand ‘SARS’.

Marks (3)

Q 49 (a) Define the term 'Disease vector'?

(b) On which factor the severity of disease manifestation depends?

(c) If a student is suffering from cold, it is likely that the other classmates sitting around can contract the infection. But, all of them actually do not suffer from the disease. Why?

Marks (3)

Q 50 What are the causes, symptoms and the methods of the prevention of tuberculosis?

Marks (5)

Q 51 Do all infectious microbes go to the same organ or tissue or they go to the different organs? If they go to different organs then how do they damage it?

Marks (5)

Q 52 What is immunity and immune system? Give the factors, which cause reduction in immunity of the body?

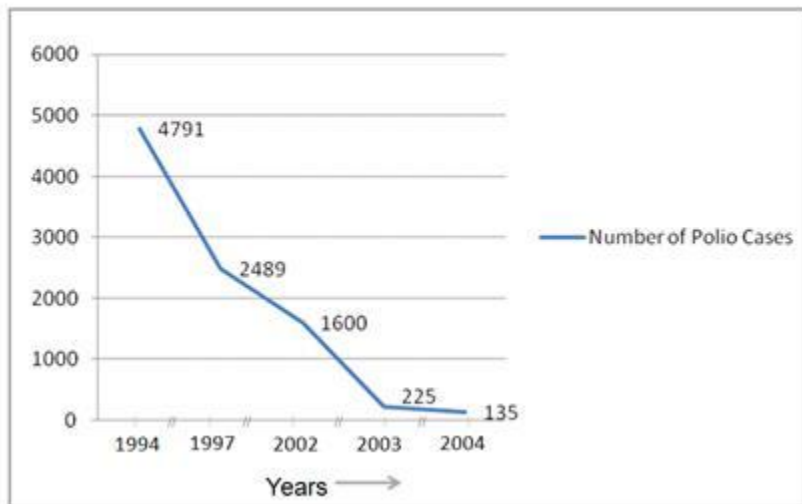
Marks (5)

Q 53 (a) The well known slogan 'Do boond zindagi ki' relates to which disease?

(b) Discuss the mode of action of Polio vaccine.

(c) Interpret the below given graph:

## Polio Statistics



Marks (5)

Q 54 (a) Name two sexually transmitted diseases.

(b) Mohan is 6 years old and suffering from AIDS. What are the various possible means through which he would have contracted the HIV infection?

(c) Explain the statement "AIDS is the terminal stage of infection by the HIV".

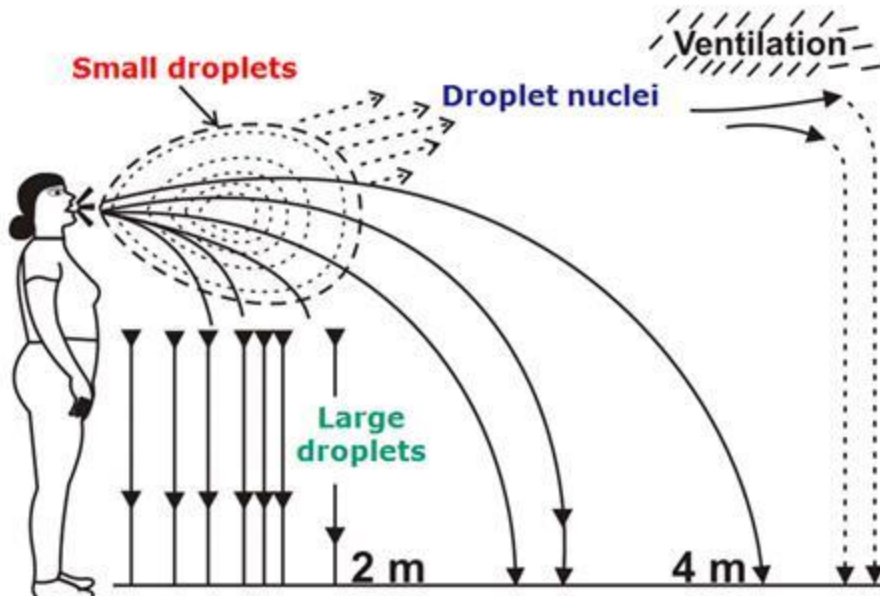
Marks (5)

Q 55 (a) Enlist the local and general effects due to inflammation.

(b) Explain the statement “Formulating anti-viral medicines is more difficult than formulating antibacterial medicines”.

(c) Taking the help of below given diagram, tell the fate of small and large droplet of nasal discharge:

## Droplet Infection



Marks (5)

### Most Important Questions

Q 1 Which organism is responsible for causing malaria?

Q 2 What are the social aspects that are necessary for individual health?

Q 3 What happens if the body is suffering from a disease?

Q 4 Which type of disease is more dangerous for health?

Q 5 Write one example of both infectious and non-infectious disease?

Q 6 What is a disease?

Q 7 Write the name of the organism that causes kala-azar.

Q 8 Define health.

Q 9 Name two diseases transmitted through contaminated food and water.

Q 10 Name 2 bacterial diseases in man.

Q 11 Name 2 viral diseases in man.



Q 12 Which organism causes malignant malaria?

Q 13 What is meant by droplet infection?

Q 14 What is cell?

Q 15 What is the difference between good health and bad health?

Q 16 What is the difference between acute and chronic diseases?

Q 17 What are the different factors which affect the health?

Q 18 What are the signs and symptoms of a disease?

Q 19 What do you understand by the immediate and contributory causes of the diseases?

Q 20 Which achievement did lay Marshall and Warren to receive the Nobel prize in 2005?

Q 21 Do all microbes go to the same organ or tissue or they go to the different organs? If they go to different organs how do they damage it?

Q 22 What is immunisation? Who discovered it? Name the disease against which it was discovered.

Q 23 Explain how does HIV-AIDS virus affect and damages our body?

Q 24 Define the basic principle of immunisation.

Q 25 Suggest some ways to prevent infections.

Q 26 Why penicillin affects only bacteria not human cells?

Q 27 How does AIDS virus spread?

Q 28 Why is making of antiviral medicines harder than antibacterial?

Q 29 How does community health depend on personal health?

Q 30 Name any four diseases for which vaccines are available.

Q 31 Why is it necessary to isolate the patient in case of infectious disease?

Q 32 Can infectious disease spread just by looking at a patient suffering from the disease?

Q 33 An animal suffering from an infectious disease should be isolated from rest of the animals. Justify the statement.

Q 34 What are vectors?

Q 35 How do we say prevention of diseases is better than their cure?

Q 36 Mention different preventive measures for infectious diseases.

Q 37 How do infectious agents spread?

Q 38 What are two main ways to treat an infectious disease?

## 14. Natural Resources

Q 1 Name the outer layer of the earth.

Mark (1)

Q 2 Write the name of two organisms, which take part in the nitrogen fixation.

Mark (1)

Q 3 Define hydrosphere.

Mark (1)

Q 4 What is atmosphere?

Mark (1)

Q 5 What is the percentage of CO<sub>2</sub> on Venus?

Mark (1)

Q 6 Define combustion.

Mark (1)

Q 7 What is the role of ozone layer?

Mark (1)

Q 8 What will happen if the CO<sub>2</sub> concentration in the atmosphere increases?

Mark (1)

Q 9 How can you describe global warming?

Mark (1)

Q 10 How is Earth's atmosphere different from that of Venus and Mars?

Mark (1)

Q 11 At what stage water is said to be polluted?

Mark (1)

Q 12 Name the man-made component which is responsible for the depletion of ozone layer.

Mark (1)

Q 13 How is 'humus' formed?

Mark (1)

Q 14 Why does the average temperature on earth remains fairly steady?

Mark (1)

Q 15 What will be result if the CO<sub>2</sub> concentration in the atmosphere increases?

Mark (1)

Q 16 Define photosynthesis, which gas is released as its byproduct?  
Marks (2)

Q 17 Define nitrogen fixation.  
Marks (2)

Q 18 What are the biotic and abiotic components?  
Marks (2)

Q 19 What are the mode of CO<sub>2</sub> fixation?  
Marks (2)

Q 20 Define biosphere?  
Marks (2)

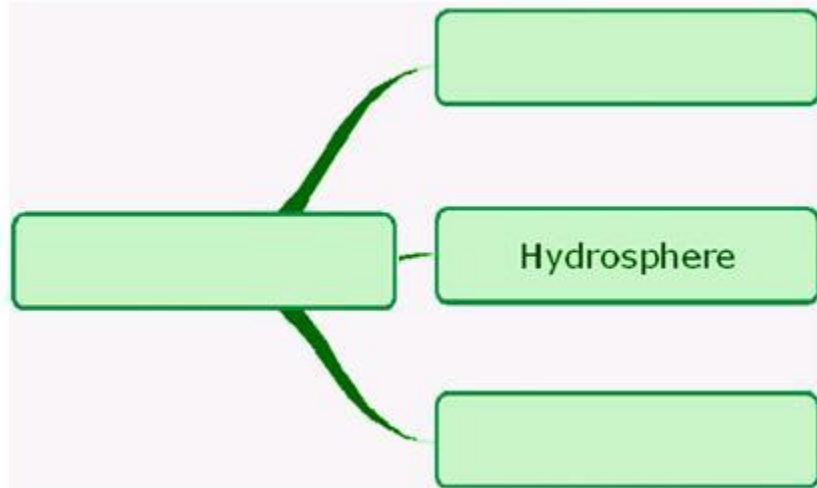
Q 21 How can you decide whether a given sample of water is polluted or non-polluted?  
Marks (2)

Q 22 Define humus and give its function.  
Marks (2)

Q 23 Define ammonification and nitrification.  
Marks (2)

Q 24 Why does the average temperature on earth remains fairly steady?  
Marks (2)

Q 25 Complete the boxes with appropriate natural resources and define the zone that comprises of all the three forms of life.



Marks (2)

Q 26 Mention two methods through which living organisms influence the formation of soil.  
Marks (2)

Q 27 List two ways in which water is useful to living organisms.

Marks (2)

Q 28 Mention any two human activities which would be responsible for air pollution.

Marks (2)

Q 29 Give one visible indication of air pollution.

Marks (2)

Q 30 What do you understand by fixed nitrogen?

Marks (2)

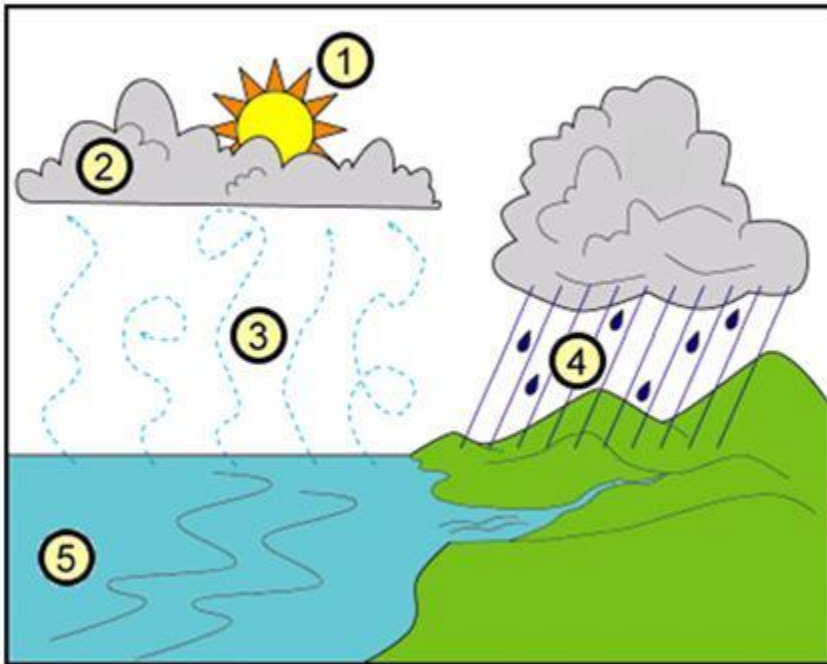
Q 31 What is humus? Explain the role of earthworms in the formation of humus.

Marks (2)

Q 32 Suggest any two measures for avoiding misuse and wastage of potable water.

Marks (2)

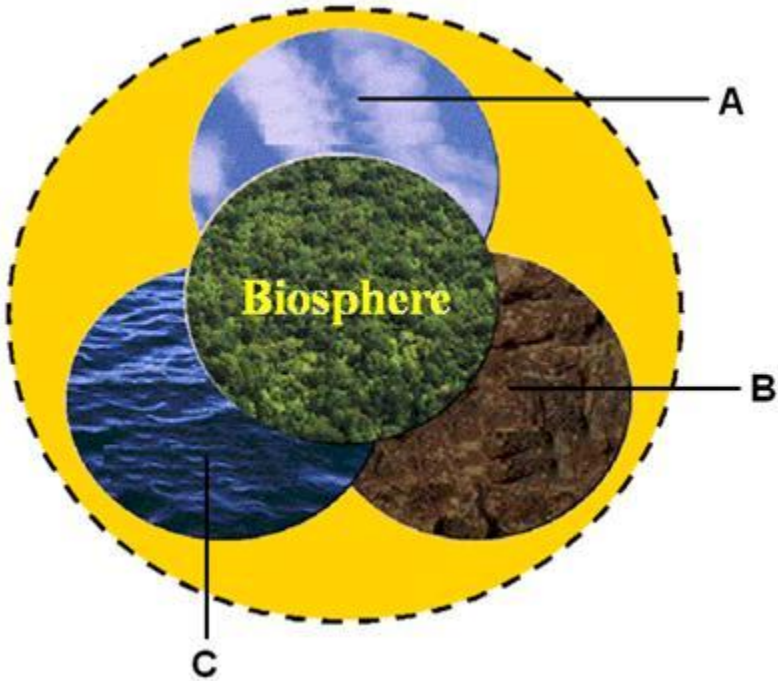
Q 33 Identify the different components of the given cycle and name the cycle represented here.



Marks (2)

Q 34 (i) What are the abiotic components of the biosphere?

(ii) Identify A, B and C in the given image:

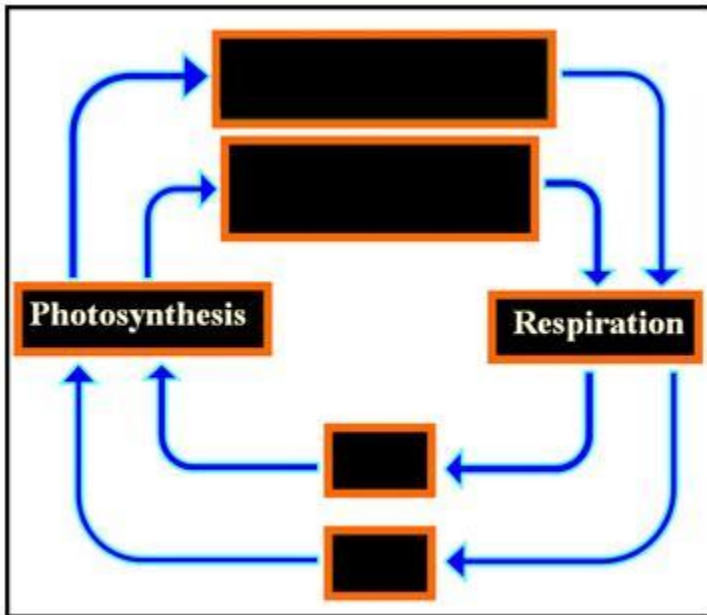


Marks (2)

Q 35 Why are fishes not able to survive in a water body that supports dense algal growth?

Marks (2)

Q 36 Complete the missing links in the oxygen cycle:



Marks (2)

Q 37 Expand the term “CNG”. Why is it known as an eco-friendly fuel?  
Marks (2)

Q 38 What is the role of atmosphere in the climate control ?  
Marks (3)

Q 39 Draw a neat and clean diagram of C-cycle.  
Marks (3)

Q 40 What are pollutants? Give the different types of the air pollutants with example.  
Marks (3)

Q 41 Draw the labelled diagram of the O<sub>2</sub> cycle.  
Marks (3)

Q 42 Why do organisms need water?  
Marks (3)

Q 43 What are the factors that make soil?  
Marks (3)

Q 44 Describe the wind movement in the coastal regions.  
Marks (3)

Q 45 What are the reasons which lead to water pollution?  
Marks (3)

Q 46 a) What is symbiosis?  
b) Name a symbiotic life form.  
Marks (3)

Q 47 Sulphur dioxide and nitrogen dioxide gases react with the water vapour present in air. What are the products formed by this reaction? What is this process known as and what are its effects?  
Marks (3)

Q 48 (i) How is the earth's atmosphere different from that of Venus and Mars.  
(ii) Mention any two human activities responsible for causing air pollution.  
Marks (3)

Q 49 Both UV-A and UV-B reach earth after passing through the ozone layer. But, as ozone layer is getting depleted, which of the two rays will be more harmful to earth and why?  
Marks (3)

Q 50 Smog is a serious problem in many countries and continues to harm human health. Justify.  
Marks (3)

Q 51 What are the various methods to control pollution?

Marks (5)

Q 52 Describe the nitrogen cycle.

Marks (5)

Q 53 Describe the process which results in rain.

Marks (5)

Q 54 Describe the effects of the air pollution.

Marks (5)

Q 55 a) 'Greenhouse effect is the cause and global warming and climate change are the consequences', justify the statement.

b) Mention the cause of green house effect.

Marks (5)

Q 56 a) Mention two ways by which water helps in formation of soil.

b) Explain oxygen cycle in nature with diagram.

Marks (5)

Q 57 a) Mention two ways of mode of fixation of  $\text{CO}_2$ .

b) Mention three ways by which carbon returns to the C-cycle.

Marks (5)

Q 58 a) What are biogeochemical cycles?

b) Explain water or hydrological cycle in the nature with diagram.

Marks (5)

Q 59 With the help of a labelled diagram,

a) show nitrogen cycle in nature.

b) list four steps involved in the cycling of  $\text{N}_2$  in the environment.

Marks (5)

Q 60 a) With the help of a labelled diagram, show the cycling of carbon in nature.

b) What are the two ways in which carbon-di-oxide is fixed in the environment?

Marks (5)

Q 61 (a) Name three processes through which oxygen is used from the atmosphere and one process through which oxygen is returned to the atmosphere.

(b) Mention three ways by which carbon returns to the C-cycle.

Marks (5)

Q 62 (a) What is nitrogen fixation? Explain with the help of a diagram.

(b) Explain water cycle in nature.

Marks (5)



Q 63 (i) Apart from natural calamities like floods, human beings are also responsible for causing soil erosion. Discuss various activities of humans that lead to soil erosion.

(ii) Mention one biotic and abiotic factor that contributes in the formation of soil.

Marks (5)

Q 64 (i) With help of a labelled diagram, show nitrogen cycle in nature.

(ii) Describe briefly any two processes involved in the cycling of nitrogen in the atmosphere.

Marks (5)

Q 65 (i) How does the movement of air bring about changes in the atmosphere?

(ii) What are the various factors that influence winds?

Marks (5)

#### Most Important Questions

Q 1 What is the outer layer of the earth known as?

Q 2 What is hydrosphere.

Q 3 What is atmosphere?

Q 4 Give the percentage of CO<sub>2</sub> on Venus?

Q 5 Differentiate between the biotic and abiotic components?

Q 6 Atmosphere plays an important role in the climate control. Justify the statement.

Q 7 What is biosphere?

Q 8 What is water pollution?

Q 9 Define pollutants? Give examples of different types of the air pollutants.

Q 10 Give the wind movement during day in the coastal regions.

Q 11 Give the important role played by the dust and other suspended particles in the air with respect to rain drop formation.

Q 12 Give one method to control air pollution?

Q 13 What is acid rain.

Q 14 What are the activities, which lead to water pollution?

Q 15 What is combustion?

Q 16 What is the function of ozone layer?

Q 17 What will be the immediate result of decrease in atmospheric CO<sub>2</sub> concentration?

Q 18 What is nitrogen fixation.

Q 19 Define global warming?

Q 20 Give the phenomenon of CO<sub>2</sub> fixation?

Q 21 Give the function of humus.

Q 22 Give the consequence of global warming?

Q 23 Give two examples of nitrogen fixing microorganisms.

Q 24 Describe the O<sub>2</sub> cycle.

Q 25 Give the biological importance of water?

Q 26 What is ammonification?

Q 27 Draw the diagram of the C-cycle.

Q 28 How is carbon resumed in the C-cycle?

Q 29 Amino acid is formed using which chemical form of nitrogen.

## 15. Improvement in Food Resources

Q 1 What is crop rotation?

Mark (1)

Q 2 Name some plants which are used as fodder for animals.

Mark (1)

Q 3 How are plants diseases controlled ?

Mark (1)

Q 4 Define fertilizers.

Mark (1)

Q 5 What are micro-nutrients for plants?

Mark (1)

Q 6 What is manure?

Mark (1)

Q 7 What are draught animals?

Mark (1)

Q 8 Why is summer ploughing useful?

Mark (1)

Q 9 Name the two nutrients supplied by green manure?

Mark (1)

Q 10 What are essential elements for plants? Which important elements are obtained from air and water?

Marks (2)

Q 11 What are weeds? Give examples?

Marks (2)

Q 12 What are the kharif and rabi crops?

Marks (2)

Q 13 State any two advantages of mixed cropping?

Marks (2)

Q 14 Name the seed borne and soil borne diseases.

Marks (2)

Q 15 Name three high yielding breeds of cow.

Marks (2)

Q 16 What do you know about milch animals?

Marks (2)

Q 17 Differentiate between manure and fertilizers.

Marks (2)

Q 18 What is the difference between autotrophs and heterotrophs?

Marks (2)

Q 19 Discuss the factors responsible for loss of crop during storage?

Marks (2)

Q 20 Name two plants which act as insecticides.

Marks (2)

Q 21 Name the types of poultry breeds?

Marks (2)

Q 22 Fill the missing words in the given table:

Organism	Desired Characters
	Pest resistance
Layers	
	Long lactation period
Fish	

Marks (2)

Q 23 Name the crops used for mixed cropping with the following crops (a) Groundnut (b) Wheat (c) Soyabean (d) Cotton.

Marks (2)

Q 24 Give at least one desired quality that one should look for in the crops given below:

- (a) Wheat
- (b) Fruits
- (c) Fodder
- (d) Cereals

Marks (2)

Q 25 Fill the missing words in the given table:

Crop	Source
	Carbohydrate
Pigeon Pea	
Sesame	
Turmeric	

Marks (2)

Q 26 Fill the missing words in the given table:

Water System	Source
	Water bearing strata
Canals	
	Rain water
	Rivers

Marks (2)

Q 27 What is plant breeding?

Marks (3)

Q 28 Write the ways in which insect pests attack the plants.

Marks (3)

Q 29 What is hybridization? What are its types?

Marks (3)

Q 30 List three common objectives of crop improvement.

Marks (3)

Q 31 What do you understand by green manuring? Give examples of crops used as green manure.

Marks (3)

Q 32 Which criteria should be kept in mind for selecting the crops for inter-cropping?

Marks (3)

Q 33 What are the functions of organic matter present in manure in soil?

Marks (3)

Q 34 (a) Name a nitrogen fixing bacteria?

(b) Which type of crop is generally grown between two cereal crops to restore soil fertility?

(c) Name two crops used for preparing green manure.

Marks (3)

Q 35 Write the full forms of:

(a) FYM

(b) HYV

(c) NDRI

Marks (3)

Q 36 Fill the missing words in the given table:

Crops	Use
Sunhemp	
	Biopesticide
Turmeric	
Gajar ghas	
Berseem	
	Food for livestock

Marks (3)

Q 37 Fill in the key words in the given flow chart showing practices involved in farming:

Choice of \_\_\_\_\_ for planting



\_\_\_\_\_ of crop plants



Protection of the \_\_\_\_\_ and \_\_\_\_\_ crops from loss

Marks (3)

Q 38 Give at least one desired quality that one should look for in the crops given below:

- (a) Wheat
- (b) Fruits
- (c) Fodder

Marks (3)

Q 39 Describe composite fish culture system.

Marks (5)

Q 40 What qualities should be taken into consideration while selecting varieties of birds for poultry farming?

Marks (5)

Q 41 What are the food requirements of dairy animals?

Marks (5)

Q 42 Discuss various types of irrigation systems adopted to supply water to agricultural lands?

Marks (5)

Q 43 (a) Explain:

- i. Rain water harvesting
- ii. Watershed management

(b) Give an example to explain improvement in cattle breeds.

Marks (5)

Q 44 (a) Give two advantages of composite fish culture systems.

(b) Give the significance of pasturage in bees.

(c) Why Italian bees are considered important for commercial honey production?

Marks (5)

Q 45 (a) What is organic farming?

(b) Justify the statement: "Organic farming works in harmony with nature rather than against it."

(c) Why earthworms are called "Farmer's friend"?

Marks (5)

### Most Important Questions

Q 1 What are the three stages at which improvement of crops can be done?

Q 2

1. Give two examples of each:

- (a) Cereals
- (b) Oilseeds
- (c) Fodder crops
- (d) pulses

Q 3 What is the method to get desired characteristics of two different species of plant in the same plant?

Q 4 What are the two agricultural seasons in India? Name the crops grown during each of the two seasons.

Q 5 What are the advantages of shorter duration of maturity of crops?

Q 6 What are the desirable agronomic characteristics for fodder crops and for cereals?

Q 7 What are the biotic and abiotic factors that can cause harm to a crop?

Q 8 What are macro and micro nutrients required for the growth of plants?

Q 9 What are the benefits of manure?

Q 10 Write a short note on the two types of manure.

Q 11 What nutrients are provided by fertilisers?

Q 12 Why is there a need for organic farming?

Q 13 What are the various methods adopted in Organic farming?

Q 14 Why are irrigation systems needed in India?

Q 15

1. Give an example of each:

- (a) Pest of stored grain
- (b) Plant disease
- (c) Herbicide

Q 16 What are the various methods of irrigation in India?

Q 17

1. What is the difference between mixed cropping and intercropping?

Q 18 Name some combinations of crops that can be sown in mixed cropping.

Q 19 What do you understand by crop rotation?

Q 20 What are the factors, on which the choice of crops for crop rotation depends?

Q 21 What are weeds? What are the various methods to prevent the growth of weeds?

Q 22

1. How can insect pests affect the crop?

Q 23 What are the advantages of mixed cropping?

- Q 24 What harm can be caused to stored crop by biotic and abiotic factors?
- Q 25 What control measures should be taken to prevent damage of stored crop?
- Q 26 What do you understand by milch animals?
- Q 27 Name some exotic and indigenous breeds of cows.
- Q 28 What is lactation period? Why is it important in dairy farming?
- Q 29 What qualities of exotic and Indian breeds are desired in crossbred dairy animals?
- Q 30 What is animal husbandary?
- Q 31 What type of food is provided to the dairy animals for milk production?
- Q 32 What symptoms does a diseased animal show?
- Q 33 What is the difference between broilers and layers?
- Q 34 Give an example of each: An indigenous breed and an exotic breed of fowl.
- Q 35 What are the advantages of using cross breeds of poultry?
- Q 36 What type of food is given to the broilers?
- Q 37 What are the two types of fisheries?
- Q 38 Name some fresh water and some marine fish.
- Q 39 What is mariculture? Name the animals cultured in mariculture.
- Q 40 What is composite fish culture?
- Q 41 What are the differences between aquaculture and apiculture?
- Q 42 Name the Italian species of bee used for honey production. What are the advantages of this species?
- Q 43 What is pasturage? Why is it important in apiculture?