

**CLASS: 7<sup>TH</sup> SUBJECT: CHEMISTRY EXAM: FA1 AND FA2**

## **CHAPTER 1: Matter and its composition**

### ***Short-answer type questions***

Q1. What is matter? Give three examples of things made of matter.

Ans) Anything which is made up of atoms is called matter. Matter has mass and occupies space. The three examples of things made of matter are book, pen and chair.

Q2. What do you mean by intermolecular force?

Ans) The force of attraction between the molecules of a matter which hold them together is called intermolecular force.

Q3. Name three states of matter and give one example of each.

Ans) The three states of matter are solid, liquid and gas. A pen, Water and carbon dioxide are respectively examples of solid, liquid and gaseous state.

Q4. Do gases have a fixed volume as liquids do? Give reasons.

Ans) No, gases have no fixed volume as liquids do because the intermolecular force in gases is so weak that the molecules are free to move to every part of the container and occupy its entire volume.

Q5. What is interconversion of states?

Ans) The change in state of matter from one state to another state is called interconversion of states. E.g., Ice interconverts into liquids when heated.

Q6. What is sublimation? Name two substances that sublime.

Ans) The interconversion of solid state directly into gaseous state without passing through the liquid state is called sublimation. Naphthalene and camphor are two substances that sublime.

Q7. What is an element? Give three examples.

Ans) A substance that cannot be split into simpler substances by a chemical means is called an element. The three examples of element are hydrogen, nitrogen and oxygen.

Q8. What is a compound? Give two examples.

Ans) A substance that can be split into simpler substance by a chemical means is called compound. A compound is composed of two or more elements. E.g., sodium chloride and water.

Q9. What are atoms and molecules?

Ans) Elements are the smallest parts of elements that take part in a chemical reaction. Molecules are the smallest part of elements or compounds that are capable of independent existence.

Q10. What forces hold atoms in a molecule and molecules in matter? Which of these forces is stronger?

Ans) The force that holds any two atoms in a molecule together is called chemical bond and the force that holds molecules in a matter is called intermolecular force. A chemical bond is much stronger than intermolecular force.

### ***Long-answer type questions***

Q1. Explain the ice-water interconversion on the basis intermolecular force.

Ans) In ice the molecules are held together by strong intermolecular force. The molecules only vibrate about their mean position. On being heated, they receive external energy and vibrate with greater energy than before. They overcome the strong cohesion of the ice. As a result, the molecules become labile and ice melts down into water.

Q2. Discuss why the shape of a solid is fixed whereas that of a liquid or a gas is not.

Ans) The shape of solid is fixed because the molecules of a solid are so tightly held that they cannot move closer or away from their positions. The liquid has no fixed shape because the molecules in a liquid are not so tightly held as in solids and can slip over one another. The shape of gas is also not fixed as the intermolecular force in a gas is so weak that the molecules are free to move and they completely fill whatever space is available.

Q3. Why is a solid not compressible but a gas is? Explain.

Ans) A solid is non-compressible because the intermolecular space in a solid is very small and the molecules are held together by strong intermolecular force. A gas is compressible to a very large extent because the intermolecular space is the largest in gases due to weak intermolecular force of attraction.

Q4. Describe activities to show the normal expansion of a solid, a liquid and a gas. Explain expansion on heating and contraction on cooling.

Refer to activity 1, 2 and 3 on page 4

Note: All the book work should be done by yourself.

## CHAPTER 2: Physical and chemical changes      EXAM: FA-2

### *Short-answer type questions*

Q1. What are reversible change?

Ans) Reversible changes are the changes where the opposite change can be brought about by reversing the conditions. E.g., the change of ice into water is a reversible change.

Q2. What are irreversible changes?

Ans) Irreversible changes are those changes where the opposite change cannot be brought about by reversing the conditions. E.g., conversion of milk into curd is an irreversible change.

Q3. Classify the following into physical and chemical changes.

- a. The melting of ice: Physical change
- b. rusting: Chemical change
- c. The cooking of food: Chemical change
- d. Fermentation: Chemical change
- e. The evaporation of a liquid: Physical change
- f. The sublimation of iodine: Physical change.
- g. The dissolution of solid: Physical change
- h. The burning of coal: Chemical change
- i. The glowing of a bulb: Physical change
- j. The freezing of water: Physical change
- k. The curdling of milk: Chemical change
- l. Photosynthesis in green plants: Chemical change
- m. The condensation of water: Physical change
- n. The digestion of food: Chemical change
- o. The boiling of an egg: Chemical change
- p. The growth of a plant: Chemical change

Q7. Define an endothermic change?

Ans) A change in which heat is absorbed is called endothermic change.

Q8. Define an exothermic change?

Ans) A chemical change in which heat is evolved is called exothermic reaction.

Q9. Classify the following into endothermic and exothermic changes.

(a) The dissolution of glucose: Endothermic change

(b) The boiling of water: Endothermic change

(c) Burning: Exothermic change

**Long-answer type questions**

Q1. Give two examples to show that the mass of the individual substance undergoing a chemical change is altered.

Ans) The mass of the individual substance undergoing a chemical change is altered. E.g., when carbon is burnt in air, the amount of carbon is reduced and finally the carbon vanishes. On the other hand if an iron nail is allowed to rust, the mass of the rusted nail is more than that of the original nail.

Q2. State the differences between physical and chemical changes.

Ans)

Physical change	Chemical change
1. A physical change is temporary. 2. A physical change is reversible. 3. No new substances are formed in a physical change. 4. In a physical change, the mass of the substance does not change.	1. A chemical change is permanent. 2. A chemical change is irreversible. 3. New substances are formed in a chemical change. 4. The mass of the individual substance undergoing a chemical change is altered.

Q3. Discuss an example to show that physical and chemical changes can occur together.

Ans) Physical and chemical changes can happen together. E.g., burning of a candle. When a candle burns, the wax melts. The molten wax flows down and solidifies. This is a physical change. A part of the molten wax vaporizes and burns to form carbon dioxide and water vapors which is a chemical change.

Q4. Giving one example of each kind, show that a change in energy takes place when a physical or chemical change occurs.

Ans) A change in energy takes place when a physical or chemical change occurs. Energy is either absorbed (endothermic change) or (exothermic change). E.g., When glucose is put on one's tongue, it feels cool as glucose absorbs heat from it. So, dissolution of glucose is endothermic change. On the other hand, if we add hydrochloric acid to water, heat is evolved. So, it is an exothermic change.

Q5. What is respiration? Explain.

Ans) Respiration is a complex natural process involving the intake of oxygen and oxidation of food (glucose) to produce energy. As a result, the new substances carbon dioxide and water are formed. Carbon dioxide is removed by the process of breathing. The energy released during respiration is used in driving the life processes. Respiration is a chemical change and is irreversible.

Note: All book work should be done by yourself.