ICSE Board
Class VI Chemistry
Sample Paper – 2

Time: 2 hrs **Total Marks: 75**

General Instructions:

1. ***All*** *questions are* ***compulsory****.*
2. *Questions 1 to 15 carry one mark each.*
3. *Questions in 2 A and B carry one mark each.*
4. *Questions in 3 A carry one mark each and Question 3 B carries five marks.*
5. *Questions 4 A and B carry five marks each.*
6. *Questions in 5 A and B carry one mark each.*
7. *Questions in 6 A and B carry one mark each.*
8. *Question 7 carries ten marks.*

Question 1

Choose the correct answer out of the four available choices given under each question. [15]

1. A glass tube made of pyrex is called a
(a) Heating tube
(b) Boiling tube
(c) Melting tube
(d) Cracking tube

2. Frost is the _____ state of water.
(a) Solid
(b) Liquid
(c) Gas
(d) Vapour

3. Which of the following is a good conductor of heat?
(a) Wood
(b) Rubber
(c) Cotton
(d) Copper

4. The process of conversion of a liquid into a solid is called_____.
(a) Melting
(b) Vaporisation
(c) Condensation
(d) Freezing

5. During filtration, the substance left behind on the filter paper is called _____.
(a) Residue
(b) Filtrate
(c) Solution
(d) none of these

6. _____ is the representation of a substance by symbols.
(a) Chemical formula
(b) Chemical structure
(c) Chemical equation
(d) Chemical reaction

7. Elements in compounds are present in _____ and cannot be separated by _____.
(a) Definite proportion, physical methods
(b) Definite proportion, chemical methods
(c) Indefinite proportion, physical methods
(d) Indefinite proportion, chemical methods

8. A separating funnel is used to separate _____.
(a) Solid-liquid mixtures
(b) Solid-solid mixtures
(c) Liquid-liquid miscible mixtures
(d) Liquid-liquid immiscible mixtures

9. Nitrogen is necessary for
(a) Photosynthesis
(b) Respiration
(c) Growth of plants
(d) Burning

10. The % of water in human body is
(a) 25%
(b) 50%
(c) 70%
(d) 90%

11. What is the percentage of carbon dioxide in air?
(a) 0.02–0.03%
(b) 21%
(c) 78–79%
(d) Variable

12. Which of the following is not a rare gas?

(a) Argon
(b) Helium
(c) Krypton
(d) Hydrogen

13. Drinking polluted water causes _____.

(a) Jaundice
(b) Polio
(c) Tuberculosis
(d) Cancer

14. Heterogeneous solid-liquid mixtures can be separated using _____.

(a) Sublimation
(b) Boiling
(c) Decantation
(d) Distillation

15. Cream is separated from milk by _____ .

(a) Winnowing
(b) Evaporation
(c) Filtration
(d) Distillation

Question 2

(A) Define the following: [5]

1. Valency
2. Diatomic molecule
3. Weathering
4. Condensation
5. Intermolecular force

(B) Fill in the blanks and rewrite the sentences: [5]

1. A molecule of nitrogen consist of _____ atoms of element nitrogen only.
2. A compound is formed by combination of at least _____ elements.
3. In solids, the molecules are _____.
4. _____ retain their shape.
5. Water is _____ .

Question 3

(A) State a method to separate the following mixtures: [5]

1. Separating stone particles from wheat grains
2. Separating heterogeneous solid–liquid mixtures
3. Separating saw dust from water
4. Separating mixture of oil and water
5. Separating cream from milk

(B) Write a note on the water cycle. Explain it with the help of a diagram. [5]

Question 4

(A) Give the principle and working of sublimation with an example. [5]

(B) Answer the following: [5]

1. Distinguish between element and compound.
2. Distinguish between physical and chemical changes.

Question 5

(A) State which of the following statements are false. Rewrite the correct statements, if false: [5]

1. Air is all around.
2. Air cannot be compressed.
3. Nitrogen is the major component of air
4. Aquatic animals do not breathe the air dissolve in water.
5. All living organisms breathe air to remain alive.

(B) Match the important chemical compounds in Column A with its uses in column B. [5]

Column A	Column B
1. Fertilisers	1. help in killing weeds which grows along with the crops
2. Insecticides	2. help in killing pests like rats, snakes etc. which destroys the crop
3. Fungicides	3. help in improving soil's fertility
4. Herbicides	4. help in destroying fungi that destroys crops
5. Pesticide	5. help in killing insects that infect and destroys crops

Question 6

(A) Describe a burette, wire-gauze and test tube. Give their uses. [5]

(B) Write the techniques used for separating the following mixtures: [5]

1. Husk and wheat
2. Pebbles from pulses
3. Pure copper sulphate from impurities
4. Sugar from sugar solution
5. Pure water from impure water

Question 7

1. Write a note on the structure of atom. [4]
2. Nitrogen present in the air is essential for the growth and development of plants. Give reason. [3]
3. State the characteristics of states of matter [3]

Solution

Question 1

1. **(b)** Boiling tube
   A glass tube made of Pyrex is called a boiling tube.

2. **(a)** Solid
   Frost is the solid state of water.

3. **(d)** Copper
   Copper is a metal and hence it is a good conductor of heat. Wood, Rubber and Cotton are non-metals. Hence, they are bad conductor of heat.

4. **(d)** Freezing
   The conversion of a liquid into solid is called freezing. For example, conversion of water into ice.

5. **(a)** Residue
   During filtration, the substance left behind on the filter paper is called Residue.

6. **(a)** Chemical formula
   Chemical formula is the representation of a substance by symbols.

7. **(a)** Definite proportion and physical methods
   Elements in compounds are present in definite proportion and cannot be separated by any physical methods.

8. **(d)** Liquid-liquid immiscible mixtures
   A separating funnel is used to separate liquid-liquid immiscible mixture. For example, mixture of oil and water, mixture of kerosene and water.

9. **(a)** Photosynthesis
   Nitrogen is necessary for Photosynthesis .

10. **(b)** Iron
    Iron is extracted from magnetite.

11. **(a)** 0.02–0.03%
    The percentage of carbon dioxide in air is 0.02–0.03%.

12. (d) Hydrogen

Hydrogen is not a rare gas whereas, argon, helium and krypton are inert gases. This family of elements is also known as rare gases.

13. (a) Jaundice

Drinking polluted water causes Jaundice.

14. (c) Decantation

This method is based on the tendency of insoluble solid particles to settle down in an insoluble solid–liquid mixture. The insoluble solid–liquid mixture is allowed to stand without any disturbance. The insoluble solid particles settle at the bottom, while the liquid floats above it. The liquid can be decanted and separated from the solid particles.

15. (b) Filtration

Cream is separated from milk by Filtration.

Question 2

(A)

1. Valency of an element is the number of hydrogen atoms which can combine with one atom of the element to form a compound.
2. A molecule is diatomic when it contains two atoms.
3. Wind, rain, heat and frost result in the breaking up of large rocks leading to the formation of soil. This process is called weathering.
4. The process of changing of gas or vapors into liquid by cooling is called as condensation.
5. The force of attraction between molecules is called Intermolecular force.

(B)

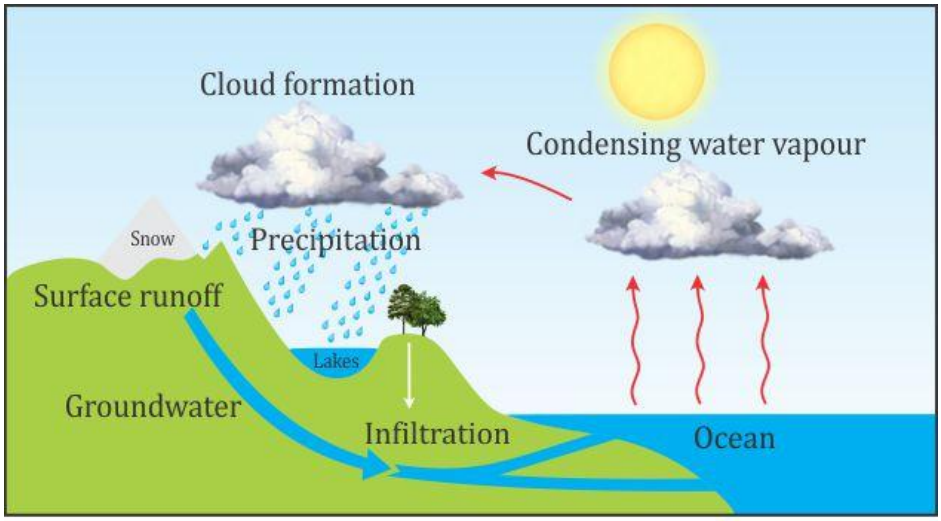
1. A molecule of nitrogen consist of **two** atoms of element nitrogen only
2. A compound is formed by combination of at least **two** elements.
3. In solids, the molecules are **closely packed up**.
4. **Solids** retain their shape.
5. Water is a compound.

Question 3

(A)

1. Handpicking
2. Decantation
3. Filtration
4. Separating funnel
5. Centrifugation

1. The water cycle is a natural cyclic process in which water is transferred from the Earth's surface to the atmosphere and back to the Earth's surface.



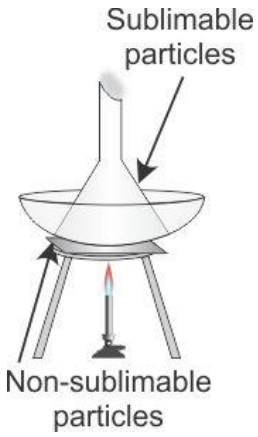
Water cycle

Heat from the Sun causes water to evaporate and rise from the seas, rivers and other water bodies and results in the formation of water vapour. As the water vapour rises, it condenses into small droplets of water, resulting in the formation of clouds. When the size of the water droplets in the clouds increases, they fall down in the form of rain. The rain water is collected underground and is streamlined into streams and ponds. Stream water enters the rivers, seas or oceans. The water from the sea evaporates forming clouds and thus continues the water cycle.

Question 4

(A) Principle of sublimation- Sublimation is based on the difference between the sublimable and non-sublimable nature of solids.

Diagram-



Working- A mixture of sublimable and non-sublimable substances is placed on an evaporating dish which is covered with an inverted flask plugged with cotton. On heating, the sublimable component evaporates and further condenses on the sides of the flask and the non-sublimable component remains in the evaporating dish.

Example- Sublimation can be used for the separation of ammonium chloride and sodium chloride in the laboratory.

(B)

1.

Elements	**Compounds**
Made up of one kind of atom	Made up of two or more kinds of atoms
Cannot be broken down into simpler substances by any physical or chemical method	Can be broken down into simpler substances by chemical methods
Have their own set of properties	Properties of a compound differ from those of their elements
Example: **$C + O_2 \rightarrow CO_2$** **Carbon and oxygen have their own set of physical and chemical properties. But carbon dioxide compound formed from the combination of these two elements have altogether different physical and chemical properties from these two elements.**	

2.

Physical Changes	Chemical Changes
• Physical changes are temporary and reversible.	• Chemical changes are permanent and irreversible.
• During a physical change, no new substance is formed.	• During a chemical change, a new substance is formed.
• During a physical change, the composition and properties of the original substance is not altered.	• During a chemical change, the composition and properties of the original substance is altered.
• Example - Boiling of milk	• Example - Curdling of milk

Question 5

(A)

1. True
2. False. Air can be compressed
3. True.
4. False. Aquatic animals breathe the air dissolve in water
5. True.

(B)

Column A	Column B
1. Fertilizers	1. help in improving soil's fertility
2. Insecticides	2. help in killing insects that infect and destroys crops
3. Fungicides	3. help in destroying fungi that destroys crops
4. Herbicides	4. help in killing weeds which grows along with the crops
5. Pesticide	5. help in killing pests like rats, snakes etc. which destroys the crop

Question 6

(A)

Burette: A burette is a uniform-bore glass tube with fine graduations and a tap at the bottom. It is used for accurately fluid dispensing and measurement.

Wire-gauze: A wire-gauze is a rectangular wire mesh with asbestos at its centre. It prevents the cracking of glass apparatus during heating. It also helps in uniform distribution of heat.

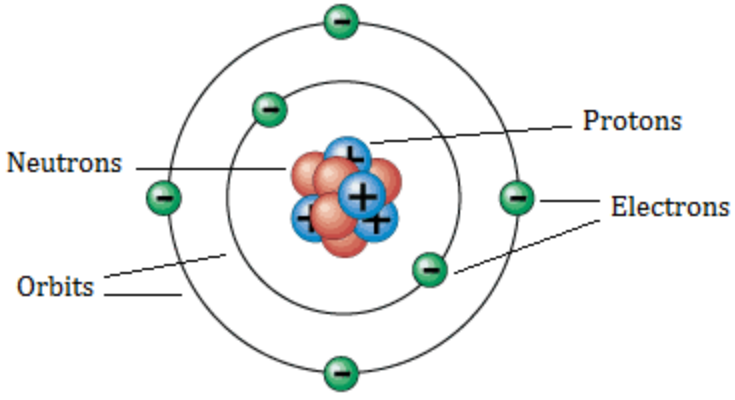
Test tube: A test tube is a special glass tube with one open and one closed end. It is used for heating purposes and also for mixing liquids during chemistry experiments.

(B)

Sr. No.	Mixtures	Technique used
1.	Husk and wheat	Winnowing
2.	Pebbles and pulses	Hand-picking
3.	Pure copper sulphate with impurities	Crystallization and Fractional crystallization
4.	Sugar and sugar solution	Evaporation
5.	Pure water from impure water	Distillation

Question 7

1. Structure of Atom:



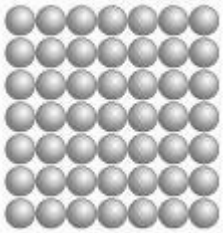
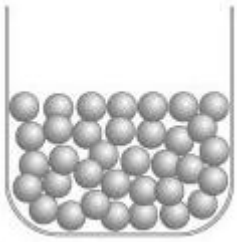
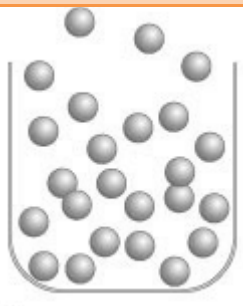
Structure of Atom

- An atom is the smallest particle of an element.
- An atom consists of three particles namely- protons, electrons and neutrons.
- Protons are positively charged and are found at the center in the nucleus of the atom.
- Neutrons are neutral in charge and are also found at the center in the nucleus of the atom.

- Electrons are negatively charged and they revolve around the nucleus in circular orbits.

2. Air consists of 78-79% of nitrogen. Some of the nitrogen present in the air is converted into soluble nitrogenous compounds in the soil, in the presence of moisture and air. These compounds are then absorbed by plants and converted into plant proteins. These proteins are essential for plants growth and development. Therefore, nitrogen present in the air is essential for the growth and development of plants.

3.

Solid State	Liquid State	Gaseous State
		
The space between the particles is very less.	The space between the particles is slightly more as compared to solids, but still very less as compared to gases. The particles of liquid can slip and slide over each other.	The particles are much farther apart from one another as compared to solids and liquids. They have a very disorderly arrangement of particles compared to solids and liquids.
The intermolecular force of attraction between the particles is strong. Thus, particles in a solid are closely packed.	The intermolecular force of attraction between the particles is strong enough to hold the particles together but not strong enough to hold the particles in a fixed position.	The intermolecular force of attraction between the particles is negligible; hence, particles of a gas move freely in all directions. Gases thus can mix or diffuse into other gases.
Solids maintain their shape even when they are subjected to external force, i.e. they are rigid.	Liquids do not have a fixed shape but have a fixed volume. Liquids take up the shape of the container in which they are poured.	Gases neither have a definite shape nor a definite volume. They fill up the container completely.