

ICSE Board
Class VII Chemistry
Sample Paper – 3

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 5 marks.*
 5. *Questions in 4 carry 5 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 A and 7 B carry five marks.*
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Question 1

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

1. _____ are used for dyeing and colouring clothes.
 - (a) Animal extracts
 - (b) Plant extracts
 - (c) Fossil fuels
 - (d) Salts
2. An evaporating dish is made of _____.
 - (a) Porcelain
 - (b) Steel
 - (c) Aluminium
 - (d) Wood
3. Bronze is an alloy of _____.
 - (a) Copper and tin
 - (b) Copper and silver
 - (c) Copper and nickel
 - (d) Copper and aluminium
4. Which of the following is volatile in nature
 - (a) Common salt
 - (b) Petrol
 - (c) Water
 - (d) Milk

5. Burning of fuels releases _____ in the atmosphere.
- (a) Carbon dioxide and water vapour
 - (b) Oxygen and water vapour
 - (c) Sulphur dioxide and water vapour
 - (d) Carbon monoxide and water vapour
6. Balancing chemical equation is based on
- (a) Law of conservation of mass
 - (b) Mass of reactant and product
 - (c) Symbols and formulae
 - (d) None of the above
7. Nuts contain _____.
- (a) Carbohydrates
 - (b) Proteins
 - (c) Fats
 - (d) Methane
8. A fuel when used releases least amount of pollutants in the air.
- (a) Sulphur dioxide
 - (b) chlorofluorocarbon
 - (c) smoke
 - (d) CNG
9. Which of the following is used in advertising signboards?
- (a) Argon
 - (b) Krypton
 - (c) Xenon
 - (d) Helium
10. _____ is hydrated calcium sulphate.
- (a) Marble
 - (b) Talc
 - (c) Gypsum
 - (d) Coal
11. Which of the following involves a change from the solid state directly to the gaseous state?
- (a) Evaporation
 - (b) Sublimation
 - (c) Condensation
 - (d) Solidification

12. Petroleum is refined using _____.

- (a) Filtration
- (b) Sedimentation
- (c) Distillation
- (d) Evaporation

13. The symbol of mercury is _____.

- (a) Me
- (b) Hg
- (c) Mg
- (d) He

14. The molecular formula of hydrogen is _____.

- (a) H₁
- (b) H₂
- (c) H₃
- (d) H₄

15. The process by which oxidation of food in our body take place is

- (a) Photosynthesis
- (b) Respiration
- (c) Decomposition
- (d) Combustion

Question 2

(A) Give a scientific word for the following:

[5]

1. A gas liberated when dilute acids react with metals.
2. An alloy of copper, tin and zinc.
3. A substance made by fusing sand, soda and gravel.
4. A substance used to speed up or slow down the chemical reactions without taking part in the reaction.
5. Molecules of an element containing three atoms of the same type.

(B) Fill in the blanks and rewrite the sentences:

[5]

1. Latin name for copper is _____.
2. Oxygen occupies about _____ of air by volume.
3. _____ is used in observation balloons.
4. _____ is used to prepare solutions for medicinal purposes, laboratories and car batteries.
5. Plaster of Paris is _____.

Question 3

(A) Match the item in Column A with the appropriate item in Column B.

[5]

Column A	Column B
Global warming	Hydrated ferric oxide
Acid rain	Manganese oxide
Rust	Carbon dioxide
Catalyst	Ozone
Photosynthesis	Nitrogen dioxide

(B) Give uses of following inert gases

[5]

1. Helium
2. Argon
3. Neon
4. Radon
5. Xenon and Kryptons

Question 4

(A) Classify the following elements as metals , non-metals and metalloids

[5]

Silicon	
Sulphur	
Platinum	
Hydrogen	
Copper	

(B) Define the following:

[5]

1. Homogeneous mixtures
2. Rusting of iron
3. Nitrogen fixation
4. Atomicity
5. Polyatomic molecules

Question 5

(A) Give the chemical formulae for the following: [5]

1. Hydrochloric acid
2. Potassium hydroxide
3. Sulphuric acid
4. Aluminium sulphate
5. Magnesium oxide

(B) State five characteristics of chemical reactions [5]

Question 6

(A) State whether True or False. [5]

1. Milk is a mixture.
2. No new substance is formed during chemical change.
3. Sulphuric acid is a weak acid.
4. Black residue is formed when sugar is heated.
5. A conical flask is used for storing and mixing liquids.

(B) Match the apparatus with its correct use. [5]

Bunsen burner	Mixing and storing gases
Thistle funnel	Heating purposes
Wire gauze	Measuring liquids
Measuring cylinder	Transferring liquids
Conical flask	Preventing cracking of a glass apparatus during heating

Question 7

1. Distinguish between metal and non-metal [4]
2. Distinguish between pure substance and mixture. [3]
3. Distinguish between physical and chemical changes. [3]

Solution

Question 1

1. **(b)** Plant extracts

Plant extracts are used for dyeing and colouring clothes.

2. **(a)** Porcelain

An evaporating dish is made of Porcelain.

3. **(a)** Copper and tin

Bronze is an alloy of copper and tin.

4. **(d)** Petrol

Petrol is volatile in nature.

5. **(a)** Carbon dioxide and water vapour

Burning of fuels releases carbon dioxide and water vapour in the atmosphere.

6. **(a)** law of conservation of mass

Balancing chemical equation is based on Law of conservation of mass.

7. **(c)** Fats

Nuts contain Fats.

8. **(d)** CNG

CNG releases least amount of pollutants in the air. .

9. **(d)** Helium

Helium is used in advertising signboards.

10. **(c)** Gypsum

Gypsum is hydrated calcium sulphate.

11. **(b)** Sublimation

Sublimation involves a change from the solid state directly to the gaseous state.

12. **(c)** Distillation

Petroleum is refined using distillation.

13.(b) Hg

The symbol of mercury is Hg.

14.(b) H₂

The molecular formula of hydrogen is H₂.

15.(b) Respiration

The process by which oxidation of food in our body take place is respiration.

Question 2

(A)

1. Hydrogen gas
2. Bronze
3. Glass
4. Catalyst
5. Triatomic molecules

(B)

1. Latin name for copper is cuprum.
2. Oxygen occupies about 21% of air by volume.
3. Helium is used in observation balloons.
4. Distillation is used for preparing solutions for medicinal purposes and laboratories, in car batteries etc.
5. Plaster of Paris is calcium sulphate.

Question 3

(A)

Column A	Column B
Global warming	Ozone
Acid rain	Nitrogen dioxide
Rust	Hydrated ferric oxide
Catalyst	Manganese oxide
Photosynthesis	Carbon dioxide

(B)

1. **Helium (He):** It is the second lightest element known to man. It is used for filling up balloons.
2. **Argon (Ar):** It is used in electric bulbs.
3. **Neon (Ne):** It is used in advertising sign boards.
4. **Radon (Rn):** It is the only radioactive inert gas used for cancer treatment.
5. **Xenon (Xe) and Krypton (Kr):** Both are used in photography.

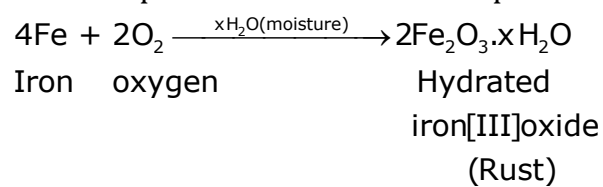
(A)

Silicon	metalloid
Sulphur	Non-metal
Platinum	Metal
Hydrogen	Non-metal
Copper	Metal

(B)

A mixture in which the components or constituents are uniformly distributed throughout its volume is called homogeneous mixtures.

Rusting is a slow oxidation process in which iron slowly reacts with oxygen of the air in the presence of moisture and produces a flaky brown substance called rust.



Rusting corrodes iron, weakens iron structure, and thus causes economic loss.

The phenomenon by which nitrogen is converted into nitrates and nitrites and get fixed in the soil or directly due to some bacterial action is known as nitrogen fixation.

The number of atoms of an element which join to form a molecule of that element is known as the atomicity of that molecule.

Polyatomic molecules of an element contain more than three atoms of the same type.

(A)

1. Hydrochloric acid: HCl
2. Potassium hydroxide: KOH
3. Sulphuric acid: H_2SO_4
4. Aluminium sulphate: $\text{Al}_2(\text{SO}_4)_3$
5. Magnesium oxide: MgO

(B)

Characteristics of Chemical Reactions

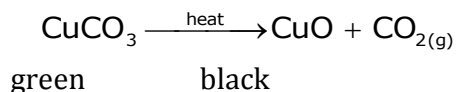
Chemical reactions are characterised by certain changes which can be easily observed. They help to recognise the changes in reactants and the formation of new products. Some of these are as follows:

1. Change of colour:

In some chemical reactions, change of colour takes place when reactants form the products.

Example:

- 1) When green-coloured copper carbonate is heated, it turns into black-coloured copper oxide.

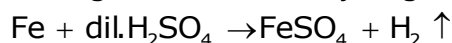


2. Evolution of a gas:

In some reactions, one of the products is a gas, which can be recognised by effervescence (bubbles), smell or colour.

Example:

- 1) When dilute sulphuric acid is added to iron flakes, a strong effervescence is observed indicating the evolution of hydrogen gas.

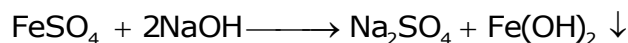


3. Formation of a precipitate:

In certain chemical reactions, an insoluble solid substance is formed called precipitate. It is formed when two solutions of soluble substances react.

Examples:

- 1) When iron sulphate solution is added to sodium hydroxide solution, a dirty green-coloured precipitate is formed.

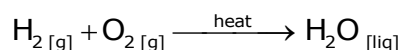


4. Change of state:

In certain chemical reactions, a change of state is observed. The reactant may be solid or liquid which changes into a gaseous product or *vice versa*.

Examples:

- 1) When hydrogen gas is burnt in oxygen gas, it results in the formation of water which is liquid in normal condition.



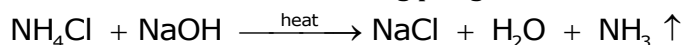
Reactants are gases $\rightarrow$ Product is in the liquid state

5. Change of smell:

During some chemical reactions, a strong smell is noticed.

Example:

When solid ammonium chloride is heated with sodium hydrochloride solution, ammonia is evolved which has a strong pungent smell.



Question 6

(A)

1. True
2. False. New substance is formed during chemical change.
3. False. Sulphuric acid is a strong acid.
4. True
5. True

(B)

Bunsen burner	Heating purposes
Thistle funnel	Transferring liquids
Wire gauze	Preventing cracking of glass apparatus during heating
Measuring cylinder	Measuring liquids
Conical flask	Mixing and storing gases

Question 7

1.

Metals	Non-metals
• Solids at room temperature Exception: Mercury	Liquids, gases or brittle solids
• Lustrous (show brightness)	Non-lustrous Exceptions: Graphite, iodine
• Malleable Exception: Zinc	Non-malleable Exception: Carbon fibre
• Ductile Exceptions: Zinc, mercury	Non-ductile Exception: Carbon fibre
• High tensile strength	Low Tensile strength Exception: Carbon fibre
• Sonorous	Not sonorous
• Good conductor of heat and electricity	Non or poor conductor of electricity Exception: Graphite
• Corrosive	Non-corrosive

2.

Pure substance	Mixture
• A pure substance has a definite set of properties. • The components of a pure substance cannot be separated using a physical method of separation. • Example: Pure oil	• A mixture has no definite set of properties. • The components of a mixture can be separated using a physical method of separation. • Example: Mixture of oil and water

3.

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