

SARALA BIRLA ACADEMY BANGALORE
Half Yearly Examinations 2007– 2008

Science

Paper 2 (chemistry)

Grade VIII A

(One and a half hours)

Monday: xx/09/2008

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

This Paper is divided into two parts, Part I and Part II.

Part I (40 marks) contains short answer questions set from the entire syllabus.

You are required to answer all questions.

Part II (40 marks) consists of Six questions.

*You are required to answer **four out of six** questions from Part II.*

*The intended marks for questions or parts of questions are given
in bracket []*

Part I (40 Marks)

(Attempt all questions)

Question 1

(a) Select the correct term from the terms A to F given below, correlating with each statement 1 to 5. [5]

- (1) Various colour pigments of chlorophyll can be separated using this technique
- (2) Process of changing from solid state to gaseous state.
- (3) A separation technique to separate two solid mixture having different mass
- (4) Process used to separate a mixture of immiscible liquids.
- (5) Process used to separate a mixture of miscible liquids.

- A. Fractional distillation
- B. Paper chromatography
- C. Gravity separation
- D. Separating funnel
- E. Sublimation

(b) Select the correct answer from A to E pertaining to the elements 1 to 5. [5]

A. Metal B. Liquid non-metal C. Gaseous non-metal D. Metalloid E. Nobel gas

1. Hydrogen
2. Argon
3. Tungsten
4. Bromine
5. Antimony

(c) State, which of the following 1 to 5, pertain to A. Physical change B. Chemical change.

[5]

1. Composition of the molecule of the substance is altered.
2. Change takes place in colour and solubility of the substance.
3. Energy required for the completion of the change is released on reversing the change.
4. Matter undergoes changes but total mass is unaltered.
5. Change takes place in the form or state only.

(d) Fill in the blanks with the correct word from the words in brackets: [5]

1. A chemical equation is a short hand form for a _____ (physical / chemical change).
2. Variable valance is exhibited, since electrons are lost from an element from the _____ (valence / penultimate) shell.
3. _____ (Iodine / naphthalene) is an example of a solid that sublimates in the absence of heat.
4. Solidification is also termed as _____ (fusion / freezing)
5. The kinetic energy of molecules in a solid is _____ (low / high).

(e) Give reason for the following: [5]

1. Using a magnet, one can't separate a mixture of sugar and common salt.
2. Air is not a compound.
3. Burning of a substance is a chemical change.
4. Solid iodine upon heating directly changes to gaseous state.
5. Conversion of water into ice is not a chemical change.

(f) Balance the following equations: [5]

1. $\text{Fe}_2\text{O}_3 + \text{C} \longrightarrow \text{Fe} + \text{CO}_2$
2. $\text{Pb}_3\text{O}_4 + \text{HCl} \longrightarrow \text{PbCl}_2 + \text{H}_2\text{O} + \text{Cl}_2$
3. $\text{Mg} + \text{N}_2 \longrightarrow \text{Mg}_3\text{N}_2$
4. $\text{CuO} + \text{NH}_3 \longrightarrow \text{Cu} + \text{H}_2\text{O} + \text{N}_2$
5. $\text{NaOH} + \text{HNO}_3 \longrightarrow \text{NaNO}_3 + \text{H}_2\text{O}$

(g) Write the balanced equation for the following word equations: [5]

1. Potassium Nitrate \longrightarrow Potassium Nitrite + oxygen
2. Calcium + water \longrightarrow Calcium hydroxide + hydrogen
3. Iron + Chlorine \longrightarrow Iron (III) Chloride
4. Aluminium + Oxygen \longrightarrow Aluminium Oxide
5. Trilead tetra oxide \longrightarrow Lead monoxide + oxygen

(h) Write the name of the following compounds: [5]

1. $\text{Ca}_3(\text{PO}_4)_2$
2. H_2SO_3
3. HNO_2
4. AlN
5. H_2CO_3

PART-II (40 marks)
(Answer any four)

Question 2.

- (a) Answer the following questions:
- (1) What is activated charcoal and how it is manufactured? [3]
 - (2) Name the form of carbon used in gunpowder? [1]
 - (b) (1) Diamond has sparkling brilliance. state two reasons for the same. [2]
 - (2) Mention the properties of graphite due to which it is used in refractory crucibles and in electrodes. [2]
 - (3) Compare the structure of Diamond and graphite. [2]

Question 3.

- (a) Explain the following terms:
- (1) Promoter
 - (2) Oxidizing agent
 - (3) Catalyst
 - (4) Redox reaction
 - (5) Exothermic reaction [5]
- (b) Write one chemical equation for each:
- (1) Double decomposition reaction
 - (2) Combination reaction
 - (3) Catalytic reaction
 - (4) Thermal decomposition
 - (5) Displacement reaction [5]

Question 4.

- (a) (1) XCl_2 is the chloride of metal X. State the formula of the sulphate and hydroxide of the metal X. [2]
- (2) What is the valence of the metal Z in the following compounds?
(i) $Z(OH)_2$ (ii) Z_4N_3 [1]
- (b) Describe briefly, how do the following mixtures are separated?
- (1) Iodine and sand
 - (2) Common salt and salt powder
 - (3) Petrol and water
 - (4) Alcohol and water
 - (5) Mixture of inks. [5]
- (c) Why air is considered a mixture ? Give four reasons. [2]

Question 5.

- (a) (1) Allotropes of carbon are chemically identical. Explain. [2]
- (2) Why are the elements considered purest form of matter? [1]
- (b) (1) what are the main constituents of pyroligenous acid? [1.5]
- (2) Name the process by which coke is prepared. [1]
- (3) Write the chemical name of wood alcohol. [0.5]
- (c) (1) How does the cane sugar carbon converted into diamond? [3]
- (2) What is the basic structural unit of diamond? [1]

Question 6.

- (a) Draw the diagram of the destructive distillation of wood in the laboratory. [4]
- (b) (1) What are the differences in burning and respiration ? Write at least four differences. [4]
- (2) Balance of oxygen and carbon dioxide is maintained in nature. How? [2]

Question7.

- (a) (1) Differentiate between [O], O₂ and O²⁻. Define each term you have stated. [3]
(2) Explain the meaning of the term 'inter-conversion of states' of matter . [1]
(3) What is meant by the term 'Sublimation'? [1]
- (b) (1) State what is a balance chemical equation? [1]
(2) What type of changes takes place in clotting of blood? [1]
- (c) Explain the following terms:
(1) Ignition temperature
(2) Supporter of combustion
(3) A non-combustible substance [3]