

SARALA BIRLA ACADEMY BANGALORE
Half Yearly Examinations 2008– 2009

Science 2 (chemistry)
Grade IX ABC

(One and a half hours)

Thursday: 11/09/2008

*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 **FIVE** 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 valence is exhibited, since electrons are lost from an element from the _____ (valence / outermost) 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_4
3. HNO_3
4. AlN
5. H_2CO_3

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

Question 2.

- a) Differentiate between physical and chemical change [3]
b) Name one salt which is efflorescent in nature [1]
Balance the chemical equation: $[\text{NH}_3 + \text{O}_2 \longrightarrow \text{NO} + \text{H}_2\text{O}]$ [2]
c) In three containers A, B and C three liquids are there which are colourless, odourless and tasteless and one of them is water Give one physical and two chemical test to identify the container which is having water. [3]
d) Give example of a salt having five molecule of water of crystallisation [1]

Question 3.

- a) Name the reactants for the preparation of CO from an formic acid [2]
b) Why is concentrated H_2SO_4 is used in preparation of CO? [2]
c) Give a balanced equation for the reaction between Magnesium and steam, [2]
d) What do you mean by oxidation, give an example [2]
e) Write chemical equation for the reaction when magnesium ribbon is burnt in presence of carbon dioxide gas in a closed container [2]

Question 4.

- a) Differentiate between mixture and a compound [2]
b) What will happen if a mixture of carbon monoxide with chlorine is kept in sunlight for a few hour [2]
c) An element X is trivalent, what will be the formula of its oxide [2]
d) Give the reaction between oxygen and carbon monoxide [2]
e) Name two gases which when passed over heated CuO reduced it to pure copper [2]

Question 5.

- a) Give example of an oxide which is amphoteric in nature [2]
b) Give example of a pentahydrate salt [2]
c) What do you observe when copper sulphate is heated. Give an equation also [2]
d) Give example of an solid acidic and basic drying agent [2]
e) Write an equation of preparation of carbon dioxide using marble chips [2]

Question 6.

- a) Give two similarities and two differences between carbon monoxide and hydrogen [4]
b) Give equation for the following reactions [4]
a. When carbon dioxide is passed through limewater, it turns milky.
b. When excess carbon dioxide is passed through milky limewater
c) Complete the following reaction and balance it
 $[\text{Sodium carbonate} + \text{hydrochloric acid} \longrightarrow \text{_____} + \text{_____} + \text{_____}]$ [2]

Question 7.

- a) Name the following [5]
a. A crystalline variety of carbon that can mark paper
b. The hardest naturally occurring substance
c. Variety of carbon that can adsorb gases
d. Two naturally occurring crystalline form of carbon
e. Type of C which is used in making of shoe polish
b) Complete the chemical equations and balance them [5]
a. $\text{C} + \text{S} \longrightarrow$
b. $\text{CuO} + \text{C} \longrightarrow$
c. $\text{C} + \text{H}_2\text{O} (\text{g}) \longrightarrow$
d. $\text{HgO} \longrightarrow$
e. $\text{K}_2\text{O} + \text{H}_2\text{O} \longrightarrow$