

Quarterly Examination - 2017-2018

Chemistry

Time : 2 Hrs. + 15 min.

Std. : IX

F. M. : 80

SECTION A : 40 Marks

(Attempt all questions)

Question 1

- a) i. What volume would a gas occupy at 2 atm and 227°C if its volume at S.T.P. is 2.5 litres. (5)
ii. An element X form a hydroxide $X(OH)_3$.
1. Find the valency of X 2. Write the formula of its carbonate.
- b) Give one example of each:
(i) Liquid oxidizing agent
(ii) negative catalyst
(iii) a gaseous substance which acts as oxidizing as well as reducing agent
(iv) An oxidizing agent that does not contain oxygen
(v) A substance that oxidizes conc. HCl to Chlorine
- c) Name the type of reaction for the following chemical equation : (5)
- (i) $2SO_2 + O_2 \xrightleftharpoons{V_2O_5} 2SO_3$
(ii) $CuSO_4 + Fe \rightarrow FeSO_4 + Cu$
(iii) $PbO + SO_2 \rightarrow PbSO_3$
(iv) $CuO + H_2 \rightarrow Cu + H_2O$
(v) $3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$
- d) Write the following equations and balance them: [5]
(i) Silver oxide + hydrogen peroxide \rightarrow Silver + Water + Oxygen
(ii) Aluminium + Sodium hydroxide + water \rightarrow Sodium aluminate + Hydrogen
(iii) Iron + Hydrochloric acid \rightarrow Iron(II) chloride + Hydrogen
(iv) Potassium bicarbonate + sulphuric acid \rightarrow Potassium sulphate + carbon dioxide + water
(v) Sodium hydroxide + nitric acid \rightarrow Sodium nitrate + water
- e) What do you observe when : (5)
(i) Lead nitrate is heated
(ii) Chlorine water is exposed to sunlight
(iii) Hydrogen sulphide gas is passed through Copper(II) sulphate solution

- (iv) Barium chloride solution is added to Sodium sulphate solution.
- (v) Black lead sulphide is heated.
- f) Calculate the percentage composition of various elements in Sodium carbonate, given that relative atomic masses of O = 16, Na = 23, C=12. [5]
- g) Write the formula of the compounds : (5)
- i) Potassium nitrate ii) Calcium bromide iii) Sodium bicarbonate
- iv. Aluminium oxide v. Ferrous sulphate
- h) Write the names of the following compounds :
- i. NaOH ii. CaCl₂ iii. NH₄NO₃ iv. ZnCO₃ v. MgS

SECTION B

Attempt any Four

Question 2

- a) Identify the water soluble salts from the following : (5)
- Sodium Chloride, Ferrous Sulphate, Silver Nitrate, Magnesium Hydroxide, Zinc Carbonate, Lead(II) Sulphate, Potassium Phosphate
- b) Identify the following gases:-
- 1) It decolorizes pink potassium permanganate solution
 - 2) It has a greenish yellow colour
 - 3) It produces dense white fumes when brought in contact with a basic gas.
 - 4) It has reddish brown color
 - 5) It produces pop sound when burnt in air

Question 3

- a) State the colour of the residue when the following salts are heated (5)
- i) Copper carbonate
 - ii) Lead (II) Nitrate
 - iii) Copper (II) Sulphate
 - iv) Ammonium Dichromate
 - v) Zinc nitrate
- b) A gas occupies 600 cm³ under a pressure of 700 mm of Hg. Find under what pressure the volume of the gas will be reduced by 20 percent of its original volume, the temperature remaining constant through out? (2)
- c) At what temperature will 500 cm³ of a gas measured at 20°C occupy half its volume? (2)
The pressures is kept constant.
- d) What is the value of freezing point and boiling point of water in Kelvin? (1)

Question 4

- a) Give reasons : (5)
- (i) Gases exert pressure in all directions
 - (ii) Mountaineers carry oxygen cylinder with them
 - (iii) Hot air is filled into the balloons used for meteorological purposes.
 - (iv) Zinc displaces copper from aqueous solution of copper sulphate.
 - (v) Sodium is kept in inert solvent.
- b) Give one term for the following statements: [5]
- (i) The process of gradual mixing of two substances by molecular motion.
 - (ii) The temperature at which the molecular motion completely ceases.
 - (iii) Pressure exerted by 76 cm of mercury at 0°C and at standard gravity
 - (iv) Atoms of the same element having same atomic number but different mass number.
 - (v) At constant temperature, the volume of a given mass of dry gas is inversely proportional to its pressure

Question 5

- a) Write the basic and acid radicals of the following salts : (5)
- (i) Sodium carbonate
 - (ii) Magnesium bisulphate
 - (iii) Aluminium sulphate
 - (iv) Sodium bicarbonate
 - (v) Ammonium phosphate
- b) Identify the salts insoluble in water: [3]
- Barium sulphate, Silver nitrate, Lead(II) hydroxide, Aluminium sulphate, Ferrous sulphide, Mercury(II) sulphate.
- c) Differentiate between neutralization reaction and precipitation reaction using chemical equations. [2]

Question 6

- a) Given below are the elements of the activity series. Arrange them in the increasing order of reactivity and answer the following questions: [5]
- Mg, Zn, K, Ca, Na, Al, Fe, Cu, Pb, Hg, Au, Ag
- i) One element that form oxide on burning
 - ii) One element that tarnish in air
 - iii) One element that do not form oxide under any conditions
 - iv) One element that form oxide at ordinary temperature

- b) Name two gases other than oxygen that support combustion [2]
- c) State two conditions for a substance to burn [2]
- d) State how combustible substance is different from inflammable substance. [1]

Question 7

- a) State three important functions performed by Respiration in the body [3]
- b) How is the equilibrium between the carbon dioxide dissolved in sea water and air maintained? [2]
- c) Name two acid anhydrides and the corresponding acid formed by them. [4]
- d) State the colour of carbon and Sulphur. [1]