Sample Paper – 2016
Class – XII
Subject – Chemistry

(Candidates are allowed additional 15 minutes for only reading the paper. They must NOT start writing during this time).

General Instruction:

(i). All working including rough work should be done on the same sheet as, and adjacent to the rest of the answer.
(ii). The intended marks for questions or parts of questions are given in brackets []. (Material to be supplied: Log tables including Trigonometric functions)
(iii). A list of useful physical constants is given at the end of this paper.

Q1.

Correct the following statement by changing the underlined part :

A) i) Molarity of a solution is independent of temperature.

ii) The mass of the atom decreases by one unit when a radioactive element emits a beta particle.

iii) Graphite has a two dimensional sheet like structure in which each carbon atom is sp^3 hybridized.

iv) Due to - M effect chloroacetic. Acid is more acidic than acetic acid.

v) Radioactive disintegration is a second process.

B) In ethyne molecule there are:

(a) Only three sigma bonds
(b) Only three pi bonds
(c) Three sigma bonds and two pi bonds
(d) Three pi bonds and two sigma bonds.

C) Complete the following statements by selecting the correct alternative from the choices given:

(i) 'A' is present at the corners of the unit cell and 'B' is present at the edge centreso f unit cell.T he molecular Formula is

(a) AB (b) AB_3 (c) A_2B (d) AB_2

(ii) The freezing point of 0.1m solution will be lowest

(a) Aluminium sulphate (b) Sodium chloride
(c) Glucose (d)Magnesium chloricle

(iii) The compound which can act as oxidizing as well as reducing agent is:

(a) $KMnO_4$ (b) H_2S (c) BaO_2 (d) H_2O_2

Q2. (a) How can crystalline sodium thiosulphate be prepared starting from sulphur ? What particular property of sodium thiosulphate is responsible for its use as an antichlor in the textile industry? [2]

(b) Write balanced equations for each of the following reactions: [3]

(i) Fluorine and dilute sodium hydroxide.

(ii) Ozone and hydrogen sulphide.

(iii) Hydrogen peroxide and sodium hydroxide.

(c) What are alums? Give two uses of potash alum. [2]

Q3) i)Derive an expression for half life period in case of first order reaction and show that it is independent of the initial concentration.

ii)A first order reaction is 50% complete in 30 rninutes at 27^{o}C.

Calculate the rate constant of the reaction at 27^{o}C.

iii) CuS is precipitated from copper salt in acidic medium while NiS from nickel salt is basic medium with hydrogen sulphide Explain.

Q4).

(a) Explain the mechanism of alkaline hydrolysis of tertiary reaction

(b) Explain:

(i) $AgNO_3$ is used as an analytical reagent

(ii) Perchloric acid is more acidic than chloric acid.

(c) Write balanced reactions for .

(i) Hydrogen sulphide treated with ferric chloride

(ii) Potassium sulphate and aluminium sulphate a crystallization

(iii) Ozone is treated with ethylene.

Q5).(a) How will you distinguish between the following pairs of compounds? (Give one good chemical test.)

(i) Ethylamine and Acetamide **(ii)** Oxalic acid and Acetic acid

(b) An Organic compound A with molecular formula C_2H_7N on reaction with nitrous acid give a compound B. B on controlled oxidation gives a compound C. C reduces Tollen's reagent to give silver mirror and D. B reacts with D in the presence of concentrated sulphuric acid to give a sweet smelling compound E. Identify A, B, C, D and E. Give the reaction of C with ammonia and name the product.

(c) Draw the isomers of a compound with the molecular formula $C_4H_4O_4$. Name the isomers.

Q6). a) What happens when

i)Br_2 is treated with water in presence of sunlight.

i i) Phosphorous is boiled with an aqueous solution of alkali .
iii) Iodine reacts with caustic soda solution.
iv) Flourine passes through a conc. Solution of sodium hydroxide.
v) Silicon reacts with stearn .
b) Write the chernical reaction when bleaching powder reacts with .
i) Srnall amount of dilute HCL.
ii) Excess of dilute HCL.

Q7). (b) Distinguish between the following compounds mention the test and the observation
(i) Starch and cellulose
(ii) Aniline and Ethyl amine
(b) Write balanced reactions for
i)Sodium thiosulphate and iodine solution are mixed.
ii)Phosphorous reacted with nitric acid.
iii) Fluorine treated with cold and dil. NaOH.

Q8). **(a)** Describe the extraction of silver from its sulphide ore by the cyanide process.
(b) Arrange the following in increasing order of acidity and explain your order:
Formic acid, acetic acid, chloroacetic acid.

Q9) State and explain the second law of thermodynamics .Mention the essential conditions for spontaneitiv in a chemical reaction