

Half yearly examination [2012]

CHEMISTRY

[X]

- ① Write the name of the element atomic no 120 ①
- ② Calculate the no of electron present in 1.6 gram of CH_4 ①
- ③ Calculate the no of SO_4^{2-} in 100 ml of 0.001 (M) H_2SO_4 ①
- ④ If the component of air are $\text{N}_2 = 78\%$ $\text{O}_2 = 21\%$ $\text{Ar} = 0.9$ $\text{CO}_2 = 0.11\%$ by volume what would be the molecular wt of the air [Ar At wt = 40] ①
- ⑤ Name a species which has ① no electron ① no neutron ②
- ⑥ What type of interparticle forces are present in L.P.G ②
- ⑦ Write electronic configuration of Fe in $\text{K}_4[\text{Fe}(\text{CN})_6]$ ②
- ⑧ A bottle of commercial sulphuric acid density [1.787 g/ml] is labelled as 86% by wt what is the normality and Molarity of the acid? ③
- ⑨ Cu^+ is diamagnetic whereas Cu^{2+} is paramagnetic why ③
- ⑩ When an electron jumps from 5th shell to 2nd shell how many spectral lines are obtained ③
- ⑪ Calculate the velocity of an electron placed in 3rd orbit of hydrogen atom. Also calculate the no of revolution per second round the nucleus. ③
- ⑫ What volume of O_2 will be required for the complete combustion of 15.2 litres of propane at N.T.P? ③
- ⑬ 10cc of H_2O_2 solution when reacted with KI solution produced 0.5 gram of IODINE Calculate the percentage purity of H_2 ③
[I = 127]

- (14) (a) Find out the relationship between K_p , K_c and K_p , K_x (3)
- (b) State and explain the effect of inert gas in the rate of a chemical reaction (2)
- (c) State and explain Le-Chatelier's principle with one example (2)

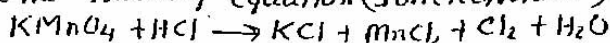
(15) (a) Prove that the pressure necessary to obtain 50% dissociation of PCl_5 at $250^\circ C$ is numerically three times K_p (2)

(b) What is Normality and Molarity. (2)

(c) Calculate the shortest and longest wavelength of hydrogen spectrum (2)

(16) (a) in Lyman series

(d) Balance the following equation (Ionelectronic) (2)



(16) (a) Define Electronegativity and affinity (2)

(b) prove that radius of Na^+ is smaller than radius of Na (2)

(c) Li^+ is the largest cation in the periodic table (2)

(d) Electron affinity of chlorine is more than F. (2)

(e) Ga ionization potential is more than Al (2)

Section B

(A) Solve the following conversions (5)

(1) Ethane to Benzene

(2) Acetylene to isopropyl alcohol

(3) Ethyne to Acetone

(4) Ethane to methane

(5) Ethane to acetylene

(6) Ethane to propyne

(7) Ethane to glycol

(8) Ethane to glyoxal.

(2 each)

(B) How will you separate methane, ethylene, and acetylene from each other (4)

(C) An organic compound C_8H_{18} on monochlorination gives a single monochloride. Write the structure (3)

(D) A compound (A) which on ozonolysis gives 2 keto propanal and formaldehyde. What is A (2)