

***Sincerity, Nobility and Service***

**CLASS: XI A CHEMISTRY**

**DATE: 29.01.19**

1. How are 0.5 m of NaOH different from 0.5 M of NaOH?

2. Write the electronic configuration of O2 - .

3. What is the basic difference between electron gain enthalpy & electro negativity?

4. Under what condition of temperature and pressure do real gases tend to show ideal gas behaviour?

5. Predict in which of the following entropy decreases / increases: i) A liquid crystallizes into a solid. ii) H2 (g) 2H(g)

6. For the following equilibrium Kp = 6.3 x 1014 at 1000k NO(g) + O3(g) NO2(g) + O2(g) What is Kp for the reverse reaction?

7. Assign the oxidation number to Mn in K2MnO4

. 8. Write the IUPAC name CH3CH = C(CH3)2.

9. What is the concentration of sugar (C12H11O22) in mol L-1 if 20g of it is dissolved in enough water to make final volume up to 2L?

10. Calculate the mass of a photon with wavelength 3.6A0 . [h = 6.626 x 10 –34 Js].

11. What is meant by ‘Polar Covalent Bond ‘? Give suitable example. Or Different sigma[σ] and pi[π] bond.

12. State Hess’s law of Constant Heat Summation by giving an example. 13. For the Galvanic cell reaction :

Zn (s) + 2Ag+ (aq) Zn2+(aq) + 2Ag(s) i) which electrode is negatively charged? ii) What is the direction of current?

14. Account for the following : i) KO2 parameganetic. ii) LiI iodide is more soluble than KI in ethanol.

15. Draw resonating structure of CO3 2- & state the hybridization of carbon in it.

16. Write bond line structural formula for : i) Isopropyl alcohol ii) 2,2,4- Trimethylpentane.

17. State the principle of the following techniques taking an example in each case: i) Distillation under reduced pressure. ii) Chromatography.

18. What do you understand by the Inductive effect? How will this justify the following order of acidic strength: CH3CH2COOH > (CH3)2CHCOOH > (CH3)3COOH

19. a) State Heisenberg’s Uncertanity Principle. b) Using s, p, d, f notations, describe the orbital with following quantum numbers : i) n=2, l=1 ii) n = 4, l =0 iii) n =5, l=3 iv) n-3, l =2

20. Predict the formula of the binary compound formed by the combination of the following pairs of elements : i) Magnesium and nitrogen. ii) Phosphorous and fluorine iii) Aluminum and iodine.

21. Define Hybridisation . State the hybridization & the shape of PCl5 and BeF2.

22. a) Which type of intermolecular forces exist between KI & I2. b) What will be the pressure of the gaseous mixture when 0.5 L of H2 at 0.8 bar and 2.0L of O2 at 0.7 bar are introduced in a 1L vessal at 270 C?

23. The equilibrium constant for a reaction is 10. What will be the value of ΔGo ?

24. What are electron deficient, electron precise and electron rich compounds of hydrogen? Give one example of each. Or What do you understand by the following terms : i) Demineralised water ii) Auto – protdysis of water. iii) Hydride Gap?

25. What happens when : i) Sodium peroxide dissolves in water. ii) Lithium nitrate is heated. Iii ) Quick lime is heated with silica?

26. a) Why is an organic compound fused with sodium for testing nitrogen, halogen and sulphur ? b) In the estimation of sulphur by Carius method, 0.468 g of an organic sulphur compound gives 0.668 g of barium sulphate. Find the percentage of sulphur in the given compound. [ At mass : Ba = 137μ, S - 32μ , O =16μ]

27. What is smog? How is classical smog different from photochemical smog?

28. a) Find the conjugate acid / base for the following species : HF, CN- , NH4 + , HCO3 - b) The ionization constant of HCOOH & HCN at 298 K are 1.8 x 10-4 , and 4.8x10-9 respectively. Calculate the ionization constant of the corresponding conjugated bases. Or a) Predict if the solutions of the following salts are neutral, acid or basic : NaCl, NH4NO3, KCN , Na NO2 , b) State Le Chatelier ‘s principle . Give the effect of pressure change & temperature change on the state of equilibrium giving example.

29. a) A certain salt ‘X’ in its aqueous solution is alkaline : i) It swells up to a glassy martial ‘Y’. ii) Its hot solution on treatment with conc. H2SO4 gives white crystals of an acid ‘Z’ Identify ‘X’,

‘Y’ and ‘Z’ a give the chemical reactions. b) What do you understand by: i) Inert pair effect. ii) Ionozation Enthalpy Or a) Complete and balance the following equation : i) B2H6 + NH3[] ii) Al + NaOH + H2O[] b) Give reasons : i) Graphite is used as lubricant. ii) Conc. HNO3 can be transported in aluminum container. iii) Co is poisonous in nature.

30. a) Give the chemical equations for the following reaction : i) Freidel – Crafts’ reaction ii) Ozonolysis iii) Wurtz reaction. b) Account for the following : i) Benzene is extra – ordinary stable through it contains three double bonds. ii) Out of toluene , benzene , m-dinitrobenzene , toluene will undergo nitration most easily.

a) State Markovnikov rule. Write IUPAC name of the product obtained by addition reaction of HBr to hex-1-ene. b) What happens when : [ Give chemical equations] i) Butane undergoes complete combustion. ii) Ethanol is heated with conc. H2SO4. iii) Ethyne is passed through red hot iron tube at 873K.