

Please check whether you have got the right question paper.

- N.B:**
1. Questions NO.1 is compulsory
  2. Attempt any three questions from remaining questions

- Q.1 Answer **any Four** from the following 20
- Define the following terms
    - Equivalent conductance
    - Specific conductance
    - Molar Conductance
  - How will you titrate strong acid with strong base without using any indicator explain the method in detail
  - Give emf measurement technique for determination of solubility product
  - Give the principle of Thin layer chromatography and Give any two applications in detail
  - Discuss the validity of the statement that "A catalyst only hastens the approach of equilibrium in a reversible reaction but it does not alter the position of the equilibrium"
  - what is meant by shielding and deshielding of a proton Nucleus ? The H NMR of a compound  $C_4H_9Br$  consist of a single line. what could be its structure.
  - Explain the Huckel's rule and expedite the aromaticity of Benzene.
- Q.2 a) Write explanatory note on **any two** of the following 05
- Enzyme catalysts
  - Auto catalysis
  - Induce catalysis
- b) Explain transport number 05
- c) The distribution ratio of  $I_2$  between  $CCl_4$  and  $H_2O$  is 80 in favour of  $CCl_4$  50 ml of an aqueous solution ( $1.45 \times 10^{-3}m$ ) is equilibrated with 30 ml portion of  $CCl_4$  calcule of amount of  $I_2$  left unextracted for single and double extraction. 05
- d) Give examples of two application of each of IR and UV spectroscopy. 05
- Q.3 a) Explain the concept of zeta potential and give its significance in collolds 05
- b) Write sunthesis of following compounds from acetoacetic ester 05
- Adiptc acid
  - Cyclobitane carboxylic acid
- c) Explain ampheromatic titration of pb (II) ion against sulphuric acid 05
- d) Predict for sample  $CH_3OC_2H_5$  and  $CH_3CH_2OH$  05
- The number of peaks
  - The splitting signal in NMR spectrum.

- Q.4 a) Explain with examples keto-enol tautomerism 05  
b) Explain how HPLC and paper chromatography are similar. Give any two application of HPLC. 05  
c) What are ion exchange resins? Name the types. 5.6 gms of common salt is passed through cation exchange in  $H^+$  form. Calculate the weight of HCl that will be formed 05  
d) How would you find out the amount of sodium present in a given sample using Flame photometer. 05
- Q.5 a) Explain liquid junction potential 05  
b) Write synthesis of following compounds from melonic ester 05  
i) Barbituric acid  
ii) 1, 6 hexane dicarboxylic acid  
c) Explain emulsion with one example each. 05  
d) Explain characteristics of good catalyst. 05