S.E-IV Sem Chem — 21/11/14.

Engineering Chemistry - II

(28) **QP Code : 12425**

(3 Hours) **[Total Marks : 80**

N.B. (1) Question No. 1 is compulsory.
(2) Answer any three questions from remaining five questions.
(3) Figures to the right indicate full marks.

1. Answer any four of the following :— 20
   (a) Discuss the Kinetics of acid base catalysis.
   (b) What is the effect of temperature on conductivity ?
   (c) What are the applications of surfactants in food industry ?
   (d) Discuss the principle and applications of HPLC.
   (e) Explain the aromaticity of pyrrole.
   (f) What are the factors in solvent extraction ?
   (g) Explain the splitting of NMR signal in ethanol and ethylmethyl ether.

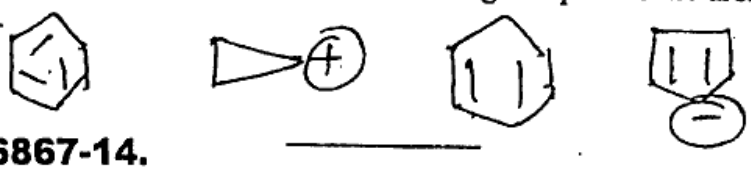
2. (a) What are the advantages and limitations of conductometric titrations ? 5
   (b) Write a note on Transport number. 5
   (c) What are colloids ? Explain the phenomenon of electro osmosis. 5
   (d) Define catalyst. Discuss any four characteristics of catalyst. 5

3. (a) Compare between U.V. spectroscopy and I.R. spectroscopy. 5
   (b) Write an expression for emf of a concentration cell without transference. 5
   (c) What are Continuous and Batch extraction ? 5
   (d) Explain the Huckel's rule of aromaticity by taking benzene as an example. 5

4. (a) 4·2 gm of common salt is passed through cation exchanger in H^+ form. Calculate the weight of HCl that will be formed. 5
   (b) Describe the working of flame photometer. 5
   (c) Explain the following terms :— 5
      (i) Specific conductance
      (ii) Equivalent conductance.
   (d) How would you prepare the following compounds from aceto acetic ester :— 5
      (i) 4-methyl uracil.
      (ii) Ethyl methyl ketone.

5. (a) Explain Debye-Huckel theory of strong electrolytes. 5
   (b) What are catalyst poisons ? Explain types of Poisons with suitable examples. 5
   (c) What are the advantages of TLC over paper chromatography. 5
   (d) Write a note on Origin of charges on Colloids. 5

6. (a) What are emulsions ? Explain types of emulsions with suitable example. 5
   (b) Write a note on Precipitation titrations. 5
   (c) The distribution ratio of I_2 between CCl_4 and H_2O is 89 in favour of CCl_4. 50 ml of an aq solution of I_2 ($1{\cdot}45 \times 10^{-3}$ m) is equilibrated with 25 ml portion of CCl_4. Calculate amount of I_2 left unextracted for single and double extraction. 5
   (d) What is aromaticity ? State whether following compounds are aromatic or non-aromatic. 5



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