

[Time: 3 Hours]

[Marks:80]

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

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- What is Nernst distribution law? Discuss the application of the distribution law in solvent extraction.
- What are surfactants? Discuss the applications of surfactants in pesticide formulation & detergents
- Justify the equivalent point obtained in potentiometric titration of chloride ions with AgNO_3 using a silver metal indicator electrode
- Write a note on Debye-Huckel theory of strong electrolytes.
- Explain the splitting of NMR signal in isopropyl bromide & ethanol.
- Explain with suitable example Homogeneous catalysis.
- Give preparation & properties of diethyl malonate

Q.2 a) What is chromatography ? Explain

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i) Ascending & ii) Radial paper chromatography

b) Write a note on transport Number.

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c) What are colloids? Explain the origin of charge on colloidal particles

05

d) Explain the aromaticity of naphthalene

05

Q.3 a) state the various possible electronic transition that are involved in the uv-visible region'. Acetophenone absorbs at higher wavelength than ethene Explain.

05

b) The distribution coefficient of I_2 between CCl_4 & H_2O is 86. Calculate the concentration of I_2 remaining in the aqueous layer after extraction of 50 ml of $1.00 \times 10^{-3}\text{M}$ I_2 with the following quantities of CCl_4

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i) 50 ml

ii) 25 ml portions.

comment on the result.

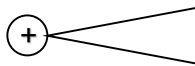
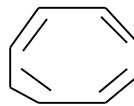
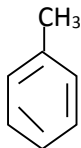
c) Explain the phenomenon of electrophoresis with neat labelled diagram.

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Q.P. Code :16051

d) Give construction working and applications of glass electrode. 05

Q.4 a) State Huckel's Rule. State whether following compounds are aromatic or non aromatic 05



b) What are emulsions? Explain types of emulsions with examples. 05

c) Write a note on flame photometer. 05

d) Derive an expression for emf of a cell without transference. 05

Q.5 a) What is the principle of Ion-exchange chromatography? Explain the separation of lanthanides. 05

b) Give the principle of GC-MS. Mention its applications. 05

c) Give the preparation of following compounds from Acetoacetic ester 05

i) Ethyl methyl ketone

ii) Succinic acid

d) What are cation & anion exchangers? 4.3 gm common salt is passed through cation exchanger in the H^+ form. Calculate weight of HCl that will be formed. 05

Q.6 a) What are catalyst? Mention any four characteristics. Explain adsorption theory of catalysis. 05

b) Discuss aromaticity of thiophene. 05

c) Compare batch & continuous process for solvent extraction 05

d) What is amperometry? Explain the titration of pb^{2+} ions with so_4^{2-} ions. 05