

15/15

29

Q.P. Code : 3628

EC - II

(3 Hours)

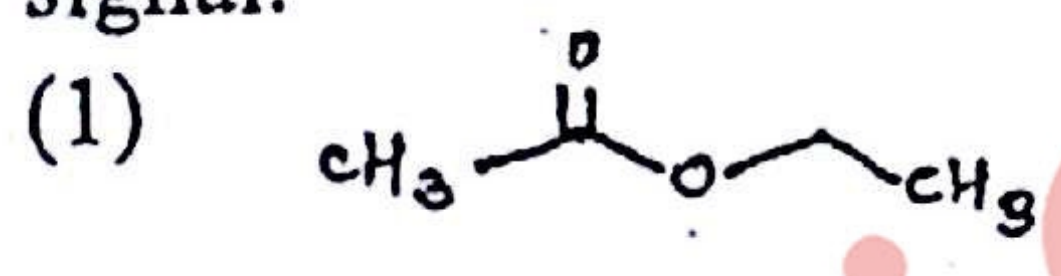
[Total Marks : 80

- N.B. :
- (1) Questions No. 1 is Compulsory.
 - (2) Answer Any Three Question from remaining Five Questions.
 - (3) Figures to the right indicate full marks.

1. Answer any Four of the following :

20

- (a) Explain the concept of electrical double layer using Heilmholtz and Stern Model.
- (b) Explain role of complexing agent in solvent extraction.
- (c) What is the principle of amperometric titration? Explain the curve obtained in titration of Pb (II) ions against sulphate ions.
- (d) Write a note on glass electrode.
- (e) What are catalyst? Explain how
 - (i) a promotor increases the activity of a catalyst.
 - (ii) a catalytic poison paralyses the activity of a catalyst.
 - (iii) a catalyst remains unchanged chemically at the end of reaction.
- (f) What is shielding and de-shielding? Explain the splitting of NMR signal.



- (2) The NMR spectrum of C_2H_4Br has only one signal. What is structure of the compound ?
- (g) Explain Keto-enol tautomerism of ethylacetoacetate (EAA). Give synthesis of butanone from EAA.

2. (a) What is the principle of uv-visible spectroscopy? Given below are three organic compounds.

5

- (i) $CH_2=CH_2$ (ii) $CH_2=CH-CH=CH_2$
- (iii) $CH_2=CH-CH=CH-CH=CH_2$ predict which one will absorb at longer wavelength and at shorter wavelength and why?

- (b) Write a note on Enzyme Catalysis. 5
- (c) Explain determination of solubility of sparingly soluble AgCl. 5
- (d) What is Aromaticity? Explain aromaticity of anthracene. 5

TURN OVER

15/5/15

2

CHEM/W/CB

EC-II

Q.P. Code : 3628

2

3. (a) The distribution ratio for Iodine between CHCl_3 & Water is 420. If 100 cm^3 of an aqueous solution containing 1.025 mg iodine is equilibrated with 50 cm^3 portions of CHCl_3 . What amount of Iodine will remain unextracted in water? Also calculate % extraction. 5
- (b) What are colloids? Explain phenomenon of electro-osmosis. 5
- (c) Explain in detail the technique of Thin-layer chromatography. How purity of acetyl salicylic acid is determined using same technique. 5
- (d) Write a note on 'transport number' 5
4. (a) Explain principle of IR spectroscopy. Explain any two applications with suitable example. 5
- (b) What are ion-exchange resins ?
10% of common salt is passed through a cation exchanger in H^+ form. Calculate weight of HCl that will be formed. 5
- (c) Discuss Debye-Huckel theory of strong electrolytes. 5
- (d) How would you prepare the following compounds from diethyl malonate i) succinic acid ii) Barbitaric acid. 5
5. (a) Give the principle of Gas chromatography Mention its application. 5
- (b) What are surfactants? Explain the application of surfactants in detergents. 5
- (c) What is the principle of solvent extraction? Explain any one method in detail. 5
- (d) Give preparation of following compounds starting from acetoacetic ester i) Adipic acid ii) 4 - methyl uracil. 5
6. (a) Explain principle of conductometric titration. Mention its advantages & limitations. 5
- (b) What are emulsions? Explain types of emulsions with suitable example. 5
- (c) Compare UV & IR spectroscopy. 5
- (d) Write a note on 'Intermediate compound formation theory.' 5