

B.Sc. II (With Credits)-Regular-Semester 2012 Sem IV
B.Sc. 2452 - Chemistry-II (Organic Chemistry) Paper- II

P. Pages : 2

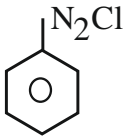
Time : Three Hours



GUG/W/16/5599

Max. Marks : 50

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1. a) What is the principle involved IR spectroscopy? Explain the characteristics absorption bands in
i) Ethyl alcohol. ii) Acetaldehyde. 5
- b) Explain different types of stretching and bending vibrations in polyatomic molecules with reference to IR spectroscopy. 5
- OR**
- c) What is the effect of conjugation on u.v. spectra of alkenes? Explain with suitable examples. 2½
- d) Discuss the position and intensity of absorption bands in IR spectrum of organic molecules. 2½
- e) What is the range of u.v. region. Explain the terms
i) Bathochromic shift. ii) Hypsochromic shift. 2½
- f) What happens when an organic compound is subjected to u.v. radiations? 2½
2. a) Discuss the acidity of carboxylic acid on the basis of Resonance. Give the mechanism of decarboxylation. 5
- b) What is esterification? Discuss the mechanism of acid catalysed hydrolysis of ester. 5
- OR**
- c) Discuss Hell – Volhard – Zelinsky reaction. 2½
- d) Give one method of preparation of Phthalic Acid? What is the action of heat on phthalic acid? 2½
- e) How ethyl acetate is converted into tertiary butyl alcohol? 2½
- f) How will you obtain. Acetaldehyde from Acetyl chloride? Give the synthesis of phenyl acetate from acetyl chloride. 2½
3. a) Why amines are basic in nature? How will you separate primary, secondary, tertiary amines from a mixture by Hoffmann's method. 5
- b) What are the products obtained when Aniline reacts with
i) CH_3COCl ii) $\text{C}_6\text{H}_5\text{COCl}$ iii) $\text{C}_6\text{H}_5\text{SO}_2\text{Cl}$
iv) $\text{CHCl}_3 / \text{KOH}$ v) $\text{H}_2\text{SO}_4 / \Delta$ 5
- OR**
- c) Write a note on Hoffmann – Bromamide reaction. 2½
- d) Write a note on Diazotisation reaction giving an example. 2½
- e) How will you synthesis picric acid. 2½
- f) Give the preparation of nitroethane from, ethyl chloride. 2½

4. a) Explain the Dumas method of estimation of Nitrogen. 5
 10.57 mg of an organic compound gave 1.08 ml of dry nitrogen of 19.5°C & 733.5mm
 calculate the percentage of nitrogen? (Aq. tension at 19.5° is 17.8 mm)
- b) How acetoacetic ester is prepared by claisen condensation? Give its mechanism. Explain keto enol tautomerism in acetoacetic ester? 5
- OR**
- c) What are organometallic compounds? Give the preparation of Diethyl zinc. 2½
- d) What is the action of the following on Methyl Magnesium Bromide. 2½
 i) Ethyl acetate ii) Carbon dioxide
- e) An organic compound has empirical formula CH₂O and its vapour density is 90. Give its molecular formula. 2½
- f) Give Mechanism of acid catalysed esterification reaction. 2½
5. Attempt **any ten**.
- i) What are organometallic compounds. 1
- ii) CH₃ – CO – CH₃ + CH₃MgBr → ? 1
- iii)  $\xrightarrow{\text{CuBr}}$? + ? + ? 1
- iv) Mention the methods for the estimation on of Nitrogen in an organic compound. 1
- v) Identify the auxochrome groups in 1
 i) phenol ii) Aniline
- vi) Define Hyperchromic shift. 1
- vii) State Lambert Beer's Law. 1
- viii) Give the order of acidity of following 1
 i) Cl – CH₂ – COOH
 ii) F – CH₂ – COOH
 iii) Br – CH₂ – COOH
- ix) What is the IUPAC Name of CH₃COOC₂H₅ 1
- x) C₆H₅COCl + H₂ $\xrightarrow{\text{pd} - \text{BaSO}_4}$? 1
- xi) How picric acid prepare from phenol? 1
- xii) Compare the basic character of aliphatic amines with aromatic amines. 1
