

**D 067**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2003.

Third Semester

Chemical Engineering

CH 236 -- ORGANIC CHEMISTRY

(Common to Textile Technology, Leather Technology and Textile Chemistry)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A -- (10 × 2 = 20 marks)

1. Classify carbohydrates.
2. What happens when cellulose is dipped in conc.  $H_2SO_4$  in a second, followed by immersion in water?
3. What is the reaction product formed between ethyl magnesium iodide and mercuric chloride?
4. What are the micro organisms against which, sulfonamide acts?
5. What are simple proteins? Give examples.
6. Define Free Acid Value of an oil.
7. Write down the structural formulae of Nicotinic Acid and furil.
8. Define a chromophore with an example.
9. How is tetrahydrothiophene prepared from 1,4 — dibromobutane?
10. Write down four classifications of waxes.

PART B -- (5 × 16 = 80 marks)

11. (i) Calculate the Free Acid Value of the given sample of oil from the following data :  
Weight of the oil taken = 5 grams  
Volume of 0.1 N potassium hydroxide consumed by the oil = 5 ml. (4)
- (ii) Which oil has the highest cholesterol lowering factor? What are the commercial names for rice-bran oil and cotton-seed oil? (4)
- (iii) Explain the effect of excess phenylhydrazine on glucose. (8)

12. (a) (i) How is catechol converted into Alizarin? (3)
- (ii) Describe vat dyeing with an example. (4)
- (iii) How is the Leuce base (colourless base) of Malachite Green prepared? (6)

Or

(b) Account for the following :

- (i) Need to use alkaline medium in the coupling of a diazonium compound with a phenol to give a diazo dye. (5)
- (ii) Colourless quinol on treatment with a mild oxidising agent like ferric chloride getting converted to yellow coloured para benzo quinone. (5)
- (iii) Extreme reactivity of para hydrogen atom in Dimethylaniline, the material used widely in the preparation of many dyes. (6)

13. (a) Write down the structural formulae of the reactants and products of the following reactions :

- (i) Furfural reacted with sodium acetate in presence of acetic anhydride, followed by treatment with 1 : 1 Hydrochloric Acid. (6)
- (ii) Pyridine subjected to sulfonation and the product fused with excess sodium hydroxide. (5)
- (iii) Pyrrole subjected to Reimer—Tiemann reaction and the product treated with Hydroxylamine. (5)

Or

(b) How are the following conversions carried out? Write down the formulae of the reactants, products and the conditions of conversion.

- (i) Indole to Gramine. (5)
- (ii) Pyridine to 2-amino pyridine. (5)
- (iii) Pyrrole to 1-acetyl pyrrolidine. (6)

14. (a) How will you prepare methane, isopropyl alcohol, 2-butyne and tert-butyl alcohol from Grignard Reagent? (4 × 4 = 16)

Or

- (b) (i) How are sulphinic acid and isobutene prepared using alkyl magnesium iodide? (2 × 4 = 8)
- (ii) How are diethylmercury and lead tetraethyl prepared using Grignard Reagent? (2 × 4 = 8)
15. (a) Summarize the structure of wool. (16)

Or

- (b) (i) Distinguish between glucose and fructose. (6)
- (ii) Explain colour reactions of proteins. (10)