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H 2121

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Third Semester

Chemical Engineering

CH 236 — ORGANIC CHEMISTRY

(Common to B.Tech Leather Technology, Textile Technology and Textile Chemistry)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are reducing and non-reducing sugars? Give one example for each.
2. What do you mean by inversion of canesugar?
3. Mention the significance of Iodine number during analysis of oil and fat.
4. What is the role of ether in the preparation of Grignard reagents?
5. What is THF? Mention its uses.
6. How would you synthesis Indole?
7. What are azo dyes?
8. How is phenolphthalein prepared?
9. What is Biuret test?
10. What is meant by Denaturation of proteins?

PART B — (5 × 16 = 80 marks)

11. (a) (i) With suitable chemical equations, explain how D-glucose reacts with the following reagents
- (1) Concentrated HNO_3
 - (2) NH_2OH
 - (3) $\text{CH}_3\text{OH}/\text{HCl}$
 - (4) $\text{HI}/\text{Red phosphorous}$. (8)

(ii) What is Gun cotton? How will you get it? Mention its uses. (8)

Or

(b) (i) Discuss the structure of cellulose. (8)

(ii) Mention the structural differences between the following :

- (1) Maltose and Lactose
- (2) Amylose and Amylopectin. (4 + 4)

12. (a) (i) What are Grignard reagents? Explain how Grignard reagent is used to prepare Primary, Secondary and Tertiary alcohols. (10)

(ii) What are Waxes? Give one example each for plant waxes and animal waxes. (6)

Or

(b) (i) Define Saponification value of a fat and explain its significance. (8)

(ii) What are Organosilicon compounds? Mention their important uses. (8)

13. (a) (i) Why Pyrrole is a weaker base than pyridine and aniline? (4)

(ii) With the help of suitable chemical equations, mention how pyrrole reacts with the following reagents

- (1) Acetic anhydride
- (2) H_2/Pt
- (3) Sodium Methoxide and Methylene iodide. (12)

Or

- (b) (i) Explain how pyridine undergoes electrophilic substitution reaction readily at C₃ but not at C₂ and C₄. (8)
- (ii) How will you obtain the following compounds?
- (1) Thiophene.
- (2) Piperidine. (4 + 4)
14. (a) (i) Explain Witt's theory of colour and constitution. (8)
- (ii) What is Alizarin? How will you synthesise it? (8)

Or

- (b) (i) Explain the preparation of the following :
- (1) Congo red
- (2) Malachite green. (5 + 5)
- (ii) What is Eosin? Mention its important uses. (6)
15. (a) (i) What are Conjugate proteins? Give examples. (8)
- (ii) Describe a method of preparation of sulphanilamide. (8)

Or

- (b) (i) Describe the secondary structure of proteins. (8)
- (ii) What is an antimalarial? Give the synthesis of chloroquine. (8)
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