



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – APRIL 2015

CH 3506/CH 3502/CH 4500 – ORGANIC FUNCTIONAL GROUPS

Date : 23/04/2015
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

SECTION-A

ANSWER ALL THE QUESTIONS:

(10 × 2 = 20)

1. What is Walden inversion?
2. Give the IUPAC names of benzyl chloride and sec-butyl chloride.
3. How will you prepare n-propyl alcohol from propylene?
4. Write the oxidation products of ethanol with $K_2Cr_2O_7$.
5. What are simple ethers? Give two examples.
6. Give the common and IUPAC names of phenetole.
7. Account for the acidic nature of α -hydrogens of carbonyl compounds.
8. Predict the product when benzaldehyde is heated with KCN.
9. What is HVZ reaction?
10. What is saponification?

SECTION-B

ANSWER ANY EIGHT QUESTIONS:

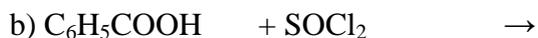
(8 × 5 = 40)

11. Discuss the stereochemistry of S_N1 and S_N2 reactions.
12. Give the mechanism of E2 reaction and mention the factors that influence E2 reaction.
13. Compare the acidity of primary, secondary and tertiary alcohols.
14. How does ethanol react with a) methyl magnesium iodide and b) acetic acid (2½ + 2½)
15. Explain the following reactions of phenol:
a) Diazo coupling reaction b) Reimer-Tiemann reaction
16. How is anisole prepared? Explain the nitration of anisole.
17. Discuss the cleavage of ethers with HI.
18. Give the preparation of benzaldehyde from a) benzyl alcohol and b) benzoyl chloride. (2½ + 2½)
19. Discuss the mechanism of Wittig reaction.
20. Give the reaction of NH_3 with a) formaldehyde and b) acetaldehyde. (2½ + 2½)

21. Arrange the following acids in the increasing order of their acid strength:

acetic acid, chloroacetic acid, propionic acid and benzoic acid

22. Give the products of the following reactions



SECTION-C

ANSWER ANY FOUR QUESTIONS:

(4 × 10=40)

23. Compare nucleophilic substitution reactions with elimination reactions.

24. How are the following conversions brought about?

a) Benzene into phenol

b) Isopropyl alcohol into n-propyl alcohol

c) Phenol into o-hydroxyacetophenone. (3+4+3)

25. a) Explain with mechanism the preparation of diethyl ether from

i) ethanol and ii) ethyl iodide

b) Give two tests in favour of the basic nature of ethers. (8+2)

26. Explain the following:

a) Michael addition.

b) Acetaldehyde is more reactive than acetone in nucleophilic addition reactions. (5+5)

27. a) Discuss Norrish type-II reaction. (4)

b) Write notes on the following reactions:

i) Trans-esterification ii) Kolbe's electrolysis. (3+3)

28. a) How is acrylic acid prepared? How do you prepare the following compounds from acrylic acid? i) propionic acid ii) ethyl acrylate and iii) acrylamide.

b) Discuss the action of heat on dicarboxylic acids. (5+5)

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