



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – CHEMISTRY**

THIRD SEMESTER – NOVEMBER 2011

**CH 3502 - ORGANIC FUNCTIONAL GROUPS - I**

Date : 01-11-2011  
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

**SECTION-A**

**ANSWER ALL THE QUESTIONS**

**(10x2=20)**

1. How is chlorobenzene prepared by Sandmeyer reaction?
2. Name the product obtained when 2-chlorobutane is treated with alcoholic potash.
3. How are 1<sup>o</sup> and 2<sup>o</sup> alcohols prepared using Grignard reagent?
4. How will you convert aniline into phenol?
5. What happens when diethyl ether is treated with excess of HI?
6. Give the IUPAC names of ethyl methyl ether and anisole.
7. Account for the polarity of carbonyl group.
8. What is MPV reduction?
9. How is phthalic acid prepared? Name the product obtained when it is heated with con.H<sub>2</sub>SO<sub>4</sub>.
10. What is esterification?

**SECTION-B**

**ANSWER ANY EIGHT QUESTIONS**

**(8x5=40)**

11. Compare the salient features of S<sub>N</sub>1 and S<sub>N</sub>2 reactions.
12. What is S<sub>N</sub>Ar reaction? Give one example and one evidence.
13. Give two examples for reactions involving O-H bond cleavage.
14. a) What are simple and mixed ethers? Give examples.  
b) Give any two methods of preparation of diethyl ether.
15. Account for the acidity of phenol.
16. Explain the mechanism of cannizzaro reaction.
17. How is anisole prepared? Discuss any two electrophilic substitution reactions of anisole.
18. Discuss Norrish type-I reaction.
19. Discuss the mechanism of benzoin condensation.

20. Explain Clemmensen reduction with its mechanism.
21. Give any one method for preparation of malonic and succinic acid?
22. What is Aldol condensation? Give its mechanism.

**SECTION-C**

**ANSWER ANY FOUR QUESTIONS**

**(4x10=40)**

23. What is E2 elimination reaction? Discuss the mechanism, evidence and stereochemistry of E2 reactions.
24. a) Name any two alcohols which will undergo haloform reaction.  
b) How is phenol prepared from benzene?  
c) What is Kolbe's reaction? Give the mechanism. (2+3+5)
25. a) What are epoxides? How is ethylene oxide prepared?  
b) Name the products obtained when ethylene oxide is treated with  
i)  $\text{H}_2\text{O}/\text{H}^+$       ii)  $\text{CH}_3\text{OH}/\text{H}^+$   
c) Mention a few uses of epoxides. (3+4+3)
26. Discuss the following reactions with mechanism.  
a) Michael addition      b) Reformatsky reaction. (5+5)
27. a) What is Wittig reaction? Explain its mechanism.  
b) Compare the acidity of the following compounds and give reason.  
i) Formic acid & acetic acid      ii) Formic acid & benzoic acid.  
iii) Propionic acid & acrylic acid. (4+6)
28. a) What are geometrical isomers? Give examples. How are the two isomers differ in their physical and chemical properties?  
b) Discuss the action of heat on  $\alpha$ ,  $\beta$  and  $\gamma$  amino acids. (6+4)

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