



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – APRIL 2017

CH 3506 / CH 3502 - ORGANIC FUNCTIONAL GROUPS - I

Date: 02-05-2017
Time: 09:00-12:00

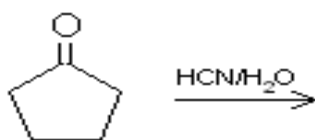
Dept. No.

Max. : 100 Marks

PART – A

Answer ALL questions. (10x2=20 Marks)

1. Vinyl chloride is unreactive in Nucleophilic substitution reactions. Why?
2. How will you convert nitrobenzene into chlorobenzene?
3. Phenols have higher boiling point than toluene. Give reasons.
4. Give the products of the following reaction.



5. How will you prepare Anisole from phenol using Williamson's synthesis?
6. Give the products of the following reaction.



7. Name the products obtained when calcium acetate is heated.
8. Predict the product.



9. Arrange the following acids in terms of increasing acid strength and give reasons.



10. What is trans-esterification reaction?

PART – B

Answer any Eight questions: (8x5=40 Marks)

11. Compare and contrast the mechanisms of E2 and E1 reactions of alkyl halides.
12. Give the Free radical mechanism for halogenations of alkanes.
13. What is Reimer – Tiemann reaction? Explain its mechanism.
14. Explain the mechanism of Michael addition reaction.
15. Although both phenol and alcohols contain hydroxyl group, phenol is acidic whereas aliphatic alcohols are not acidic – Explain.
16. How is phenol prepared from cumene? Give its mechanism.
17. What is MPV reduction? explain its mechanism.
18. Illustrate Norrish type – II reaction with an example.

19. Explain crossed aldol condensation with an example.
20. What is Reformatsky reaction? Explain its mechanism.
21. Discuss the geometric isomerism of unsaturated dicarboxylic acids.
22. Explain the mechanism of alkaline hydrolysis of esters.

PART – C
Answer any four questions: (4x10=40 Marks)

- 23.i. Explain Hoffmann and Saytzeff rules using suitable examples. (5)
ii. Explain the effect of Nucleophile and Solvent in aliphatic Nucleophilic substitution reactions.
- 24.i. How will you convert phenol into
a. Salicylic acid.
b. Chlorobenzene
c. Phenolphthalein.
d. phenyl acetate
e. p-quinone
- 25.i. How is acetic acid converted to ethyl acetoacetate. (4)
ii. How would you prepare the following compounds
a. Succinic acid from benzene
b. Malonic acid from acetic acid. (6)
- 26.i. How will you prepare lactic acid using Hell-Volhard-Zelinsky procedure? (3)
ii. What is the action of heat on β -hydroxy propionic acid (3)
iii. Give any one method of preparation of acrylic acid. (3)
- iv. Write the product obtained when acrylic acid reacts with bromine. (2)
- 27.i. Write short notes on
a. Perkin reaction
b. Benzoin condensation. (5)
ii. Discuss the mechanism of Wittig reaction. (5)
- 28.i. How will you prepare
a. Ethylene oxide from ethylene.
b. Diethyl ether from ethanol.
c. Ethylene glycol from ethylene oxide.
d. β -ethanol amine from ethylene oxide,
e. 2-mercaptoethanol from ethylene oxide.
