



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2014

CH 3506/3502 - ORGANIC FUNCTIONAL GROUPS - I

Date : 31/10/2014

Dept. No.

Max. : 100 Marks

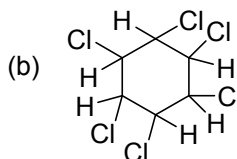
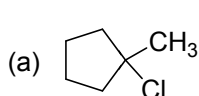
Time : 09:00-12:00

SECTION-A

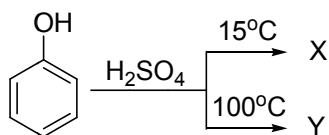
Answer ALL questions.

(10 x 2 = 20 marks)

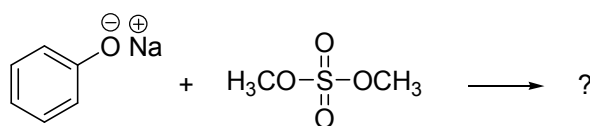
1. Write IUPAC names of the following compounds.



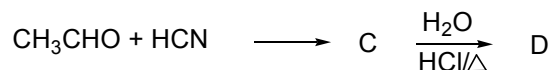
2. How will you prepare chlorobenzene from aniline?
3. How is salicylic acid prepared from phenol?
4. Identify X and Y:



5. What happens when ethylene oxide is treated with CH_3COOH ?
6. Give the product of the following reaction.



7. Write the IUPAC name of the compound: $\text{C}_6\text{H}_5\text{-CH=CH-CHO}$
8. Identify C and D in the following reaction.



9. Arrange the following compounds in the order of decreasing acidity.

Acetic acid, chloroacetic acid, propionic acid

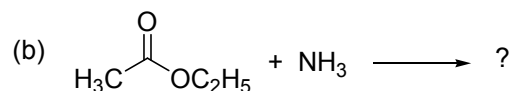
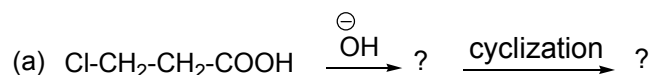
10. Benzoic acid is more acidic than acetic acid. Why?

SECTION-B

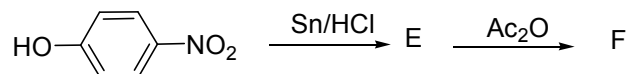
Answer any EIGHT questions:

(8 x 5 = 40 marks)

11. Discuss the effect of (i) Nature of nucleophilic agent (ii) polarity of the solvent on S_N2 reaction.
12. Nitration of chlorobenzene gives ortho and para products while nitration of nitrobenzene gives only meta isomer. Explain.
13. Discuss the following properties of alcohol:
 - (i) Esterification
 - (ii) Reaction with halogen acid.
14. Discuss the mechanism of acid and base catalyzed cleavage of epoxides.
15. Describe the preparation of diethyl ether. How does it react with the following?
 - (a) PCl_5
 - (b) HI .
16. Explain the mechanism of Michael addition with a suitable example.
17. How will you prepare cinnamic acid from benzaldehyde?
18. Explain the mechanism involved in Norrish type I reaction. Give an example.
19. Find out the products in the following reaction.



20. Explain base catalyzed mechanism of hydrolysis of ester with evidence in its favour.
21. How will you convert ethanol into methanol and methanol into ethanol?
22. Find out and mention the name of the products.

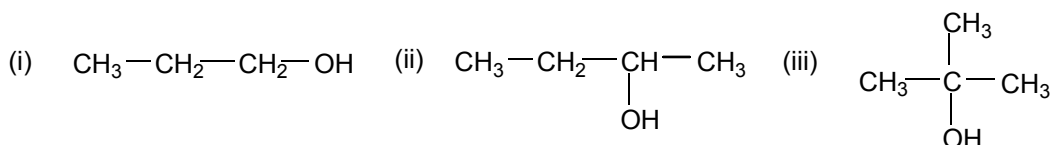


SECTION-C

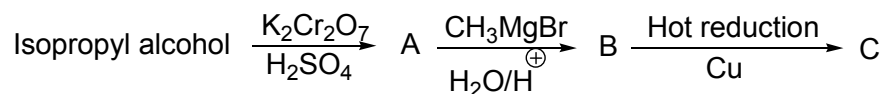
Answer any FOUR questions:

(4 x 10 = 40 marks)

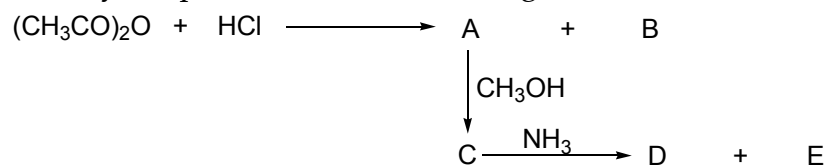
23. a. Justify the following statements:
 - (i) Vinyl halides are much less reactive than alkyl halides in nucleophilic substitution reaction.
 - (ii) Allyl halides are unusually reactive in nucleophilic substitution reaction.
- b. Explain the mechanism of E_2 reaction with an example.
24. a. Which of the following alcohols would be easily dehydrated and why?



- b. Identify A, B, C and D in the following reaction.



25. a. What happens when chlorine is passed through diethyl ether
(i) in dark(ii) in presence of sunlight.
- b. Compound A when heated with KOH give an epoxide B which on further heating give acetaldehyde. Identify A and B.
26. a. Discuss the mechanism of Benzoin condensation.
- b. What is the reagent used in MPV reduction? Discuss the mechanism of MPV reduction using o-nitrobenzaldehyde as an example.
27. a. What is the difference between aldol and cannizaro reaction? Explain the mechanism of each reaction.
- b. What happens when bromine added to maleic and fumaric acid?
28. Identify the products in the following reaction.



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