(Pages : 4) **M – 1491**

Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2021

First Degree Programme under CBCSS

Chemistry

Core Course VII

CH 1543 : ORGANIC CHEMISTRY II

(2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. Each question carries **1** mark. Answer in **one** word to maximum **two** sentence.

1. Write down the structure of urotropine.
2. Name the aldehyde which reacts with phenyl magnesium bromide to give an adduct. Which on subsequent hydrolysis yield a primary alcohol.
3. Give one test to distinguish an aromatic aldehyde from an aliphatic aldehyde.
4. Which among the following compound has the highest boiling point?
   (a) Dimethyl ether
   (b) Acetaldehyde
   (c) Ethyl alcohol.
5. Name the reaction by which acetic acid is converted into trichloro acetic acid.

P.T.O.

6. Define sono chemical switching.
7. How does the microwave irradiation generally affect the rates of reaction?
8. What is Lucas reagent?
9. Define auxochrome.
10. What is PCC? How does it act on primary alcohol?

($10 \times 1 = 10$ Marks)

SECTION – B

Answer **any eight** questions. Each carries **2** marks.

11. Phenol is less acidic than p-nitrophenol. Why?
12. Enroute the conversion of propyne to isobutyl alcohol.
13. How will you distinguish acetaldehyde from propanal?
14. What do you mean by finger print region?
15. ^{13}C is NMR active where as ^{12}C is not Explain.
16. What is meant by MPV reduction?
17. Explain whether a compound can undergo more than one electronic transition.
18. Explain the chemical shift.
19. Explain one microwave assisted reaction. How is it superior to its thermal counterpart?
20. Explain McLafferty rearrangement.
21. Illustrate the use of DIBAL-H with suitable example.
22. Explain the synthesis and one use of diazomethane.

($8 \times 2 = 16$ Marks)

SECTION – C

Answer **any six** questions. Each question carries **4** marks.

23. Explain the method of estimating methoxy group.
24. Write a short note on aci-nitro tautomerism. How will you convert a nitroalkane to the respective aldehyde? Name the reaction.

25. Explain how benzene diazonium chloride is prepared? Mention two applications in synthetic field.

26. What are crown ethers? How are they prepared? Give two applications.

27. Perkin reaction is an aldol type condensation reaction. Justify the statement the by giving the mechanism.

28. What is Hoffmann's bromamide reaction? Illustrate it with an example. Suggest a mechanism for the reaction.

29. How is benzenesulphonic acid prepared? How will you convert it into aniline and phenol? Explain.

30. An organic compound with molecular formula $C_9H_{10}O_2$ gave the following spectral data. Deduce the structure of the compound.

    IR : 1745 cm^{-1} (s) 1225 cm^{-1} (br, s) 749 cm^{-1} (s) 697 cm^{-1} (s)

    UV : λ_{max} at 268 nm 264 nm 257 nm

    H_{NMR} $\delta 1.96, 5.00, 7.22$. (The singlets obtained had the peak area in the ratio 3:2:5 respectively).

31. What will be the multiplicity of each kind of protons in the following compounds?
    (a) Ethylbenzene
    (b) Toluene
    (c) Propanoic acid
    (d) Butanone.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. Each question carries **15** marks.

32. What is green chemistry? Explain the need for green chemistry. Explain the 12 principles of green chemistry.

33. Discuss the mechanism of the following reactions.
    (a) Fries rearrangement
    (b) Pinacol-pinacolone rearrangement.
    (c) Claisen rearrangement
    (d) Benzidine rearrangement
    (e) Hoffmann elimination reaction.

34. (a) Explain how primary, secondary and tertiary amines are separated?

(b) Discuss the host-guest interactions in supramolecules.

(c) What are epoxides? Illustrate acid and base catalyzed ring opening with suitable example.

35. (a) How is phenol manufactured in large scale?

(b) Discuss how and under what conditions it will react with

(i) Carbondioxide and alkali

(ii) Chloroform and alkali

(iii) Con Nitric acid

(iv) Bromine water

(c) How will you convert:

(i) benzaldehyde to benzoin

(ii) benzaldehyde to cinnamic acid.

($2 \times 15 = 30$ Marks)

———————