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Fifth Semester B.Sc. Degree Examination, February 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

(Very short answer type questions)

Answer **all**. **Each** question carries **1** mark.

1. How does the basicity of primary, secondary and tertiary alkylamines vary?
2. Name the test that is used to identify primary amines.
3. How does methanal react with ammonia?
4. Compare the acidity of methanol, propan-2-ol and phenol
5. Give the method of preparation of coumarin.
6. What is the effect of shielding on delta value of an NMR signal?
7. Which stretching is responsible for the broad band at 3400 cm^{-1} in IR spectrum of aniline?

8. Name two green solvents.

9. Illustrate Williamson's synthesis with a suitable example.

10. What is an auxochrome?

(10 × 1 = 10 Marks)

SECTION – B

(Short answer questions)

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

11. Explain with equation how methyl magnesium bromide can be converted into tertiary butylalcohol.

12. How is primary, secondary and tertiary alcohols distinguished?

13. Explain the term λ_{max} in terms of UV-visible spectroscopy.

14. What is meant by finger print region in an IR spectrum of an organic molecule?

15. How can phenol be converted to parabromophenol?

16. Give one example for an ultrasonicated reaction that can be carried out in acid medium.

17. Illustrate Schotten Baumann reaction with a suitable example.

18. What is Kolbe Schmidt reaction?

19. What is meant by haloform test?

20. What is meant by base peak in mass spectroscopy?

21. What is meant by green synthesis?

22. What are the conditions for a molecule to be IR active?

(8 × 2 = 16 Marks)

SECTION – C

(Short essay questions)

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

23. Mention the differences between phenols and alcohols.

24. How is benzene sulphonic acid converted to p- nitro phenol?

25. How can aniline be converted to p-bromoaniline?

26. Sketch the ^{1}H NMR spectrum of ethanol.

27. Illustrate the following reactions with mechanism

    (a) Reimer-Tiemann reaction

    (b) Claisen condensation.

28. Discuss the method of separation of three kinds of amines.

29. How is aniline converted into Phenyl carbylamine? Give the mechanism.

30. Give the name and mechanism of the reaction that you would adopt for the conversion of normal butyl amine to 1-butene.

31. Illustrate, with an example each, two different nucleophilic addition reactions under gone by aldehydes and ketunes.

(6 × 4 = 24 Marks)

SECTION – D

(Long essay questions)

Answer **any Two**. **Each** question carries **15** marks.

32. Discuss the principles of green chemistry. **(15)**

33. Discus the mechanism of the following reactions.

    (a) Cannizaro reaction

    (b) Fries rearrangement

    (c) Benzidine rearrangement

(3 × 5 = 15 marks)

34. Discuss :

(a) Zeisel's method of estimation of methoxy group.

(b) Crown ethers. How are they named? Mention their applications.

(c) The synthetic applications of benzenediazonium chloride.

(3 × 5 = 15 marks)

35. (a) Illustrate two microwave assisted reactions, one each in organic solvent and in water.

(b) Define atom economy of a synthetic reaction. Explain its significance with a suitable example.

(c) Explain the splitting of a signal into multiplets due to spin-spin coupling taking the example of NMR spectrum of ethyl chloride.

(3 × 5 = 15 marks)
