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M – 4630

Fourth Semester B.Sc. Degree Examination, February 2022

First Degree Programme under CBCSS

Chemistry

Complementary Course for Botany

CH 1431.3 ORGANIC CHEMISTRY

(2019 Admission)

Special Examination

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. Example for a carrier gas used in gas chromatography is ——————

2. Give example for a nonpolar solvent in chromatography.

3. Give example for an achiral α-amino acid.

4. Represent the structure of D-glyceraldehydes.

5. The heteroatom present in alkaloid is ——————

6. The valuable byproduct of saponification is ——————

7. Give example for a mordant dye.

P.T.O.

8. The wavelength corresponding to Indigo in spectrum is ——————nm.

9. —————— is an example of a broad spectrum antibiotic.

10. The compound acetaminophen is generally called ——————in India.

<div align="right">(10 × 1 = 10 Marks)</div>

SECTION – B

(Short answer type. Answer any **eight** questions. Each question carries **2 marks**)

11. What are the advantages of gas chromatography?

12. How can we predict the polarity of compounds from R_f value in TLC?

13. Briefly explain the sheehan method for the preparation of peptides.

14. How isoelectric point is used in the separation of individual amino acids?

15. Why proteins are denatured?

16. Draw the structure of enantiomers of lactic acid.

17. Describe the term enantiomeric excess.

18. Differentiate between acid value and iodine value.

19. Give the general structure of oils and fats.

20. Citral is an isoprenoid. Justify

21. Give the structure of vitamins A and C.

22. Draw the structure of malachite green.

23. How can we extract Indigo from natural source?

24. Explain the necessary qualities for a compound to act as dye.

25. Describe the use of hypnotics.

26. Write note on anticancer compounds from plants.

$(8 \times 2 = 16 \text{ Marks})$

SECTION – C

(Short essay type. Answer any **six** questions. Each question carries 4 marks)

27. Differentiate between adsorption and partition chromatography.

28. Describe the principle and application of ion exchange chromatography.

29. Explain the classification of amino acids.

30. Explain a colour reaction for the identification of amino acids.

31. Describe the processes in transcription and translation.

32. Illustrate the structure of erythrose and throse.

33. Describe one method for the separation of racemic acids.

34. Write a note on vitamin deficiency diseases.

35. Explain the process of isolation of geraniol.

36. Describe method for preparation of phenolphthalein and schiffs reagent.

37. Briefly classify dyes based on structure.

38. Briefly explain a method for synthesis of aspirin.

$(6 \times 4 = 24 \text{ Marks})$

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SECTION – D

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

39. (a) Briefly explain the stereochemistry of tartaric acid;

    (b) Assign R and S for each of the chiral carbons in stereoisomers of tartaric acid. [10+5]

40. Briefly explain the structure of proteins.

41. Write note on,

    (a) Methods in planar chromatography

    (b) Capillary electrophoresis [8 + 7]

42. (a) Describe a method for extraction of alkaloids;

    (b) Draw the structure of coniine and nicotine. [10 + 5]

43. Describe different theories for the appearance of colour in compounds.

44. Write note on,

    (a) sulphadrugs

    (b) Antacids

    (c) antimalarials.

(2 × 15 = 30 Marks)

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