



MAR IVANIOS COLLEGE (AUTONOMOUS)
THIRUVANANTHAPURAM

Reg. No. :.....

Name :.....

Third Semester B.Sc. Degree Examination, November 2016

First Degree Programme under CBCSS

Complementary Course: Chemistry – III (for Zoology)

AUCH331.2e: Organic and Biophysical Chemistry I

Time: 3 Hours

Max. Marks: 80

SECTION – A

Answer ALL questions in one or two sentences.

1. Out of pyrrole and pyridine, which is more basic and why ?
2. What is meant by mutarotation ?
3. Name two water soluble vitamins.
4. What is TMS ?
5. Define the term nucleophile with an example.
6. What is meant by induced magnetic field ?
7. What are artificial hormones ? Give one example.
8. How will you differentiate enantiomers and diastereomers ?
9. Define coupling constant (J).
10. Give examples for nucleophiles.

(10 × 1 = 10 Marks)

SECTION – B

Answer any EIGHT questions, each in a short paragraph not exceeding 50 words.

11. What are the main sources for Vitamin A. Mention about the deficiency diseases
12. Distinguish between SN¹ and SN² reactions.
13. What is Raman Effect ?
14. Define homolytic and heterolytic fission with example.

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15. Explain Mutual Exclusion principle.
16. Draw and explain different conformations of ethane and cyclohexane.
17. What are the applications of NMR spectroscopy ?
18. What are the deficiency disease of Vitamin H, K, C and D₂
19. Explain the quantum theory of Raman Effect.
20. What is asymmetric synthesis ? Give an example.
21. Briefly write the functions of bile acids.
22. Write a note on the isomerism of aldoximes and ketoximes.

(8 × 2 = 16 Marks)

SECTION – C

Answer any SIX questions, each in a paragraph not exceeding 120 words.

23. Give a brief account of steroid hormones.
24. Write a note on properties and isolation of Nicotine.
25. What do you mean by fine structure in NMR ?
26. Write a note on Stoke's and Antistokes lines in Raman Spectra.
27. What is peroxide effect ? Give an example.
28. Explain Hoffmann's exhaustive methylation.
29. Write a note on geometrical isomerism with examples.
30. Describe the methods available for the resolution of racemic mixtures.
31. Explain Markownikoff's rule, with an example.

(6 × 4 = 24 Marks)

SECTION – D

Answer any TWO questions, not exceeding four pages.

32. Explain the physiological activity of vitamin B.
33. Define the term (i) hyper conjugation (ii) Inductive Effect (iii) Electromeric effect
34. Give any two methods for the preparation of pyrrole. Also mention its properties and uses.
35. Give the preparation of fructose. Compare and contrast the properties of fructose and glucose.

(2 × 15 = 30 Marks)

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