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

(*for 2014 Admissions – **Improvement** Only*)

Time: **3** Hours Max. Marks: **80**

SECTION – A

*Answer **ALL** questions in a word or one or two sentences.*

1. In a multistep reaction, the rate of the reaction depends upon _____ step.
2. Mention any two applications of NMR spectroscopy.
3. What is Rayleigh's scattering ?
4. Give one use of cyanocobalamine.
5. Which is more basic pyridine or pyrrole ?
6. What if conformation ?
7. What is meant by resolution ?
8. Benzene undergoes _____ substitution reaction.
9. What is umbrella effect ?
10. What are axial and equatorial bonds ?

(10 × 1 = 10 Marks)

SECTION – B

*Answer any **EIGHT** questions, not exceeding a paragraph.*

11. Write a note on chemical shift.
12. What are stokes and antistokes lines in Raman Spectra ?
13. Which is more acidic, acetic acid or chloro acetic acid ? Why ?

14. What is resonance ?
15. What is peroxide effect ?
16. Draw the structure of R – chloro fluoro bromo methane.
17. What is mutarotation ?
18. What is meant by E and Z congifuration ?
19. Write the deficiency diseases caused due to vitamin C.
20. What is epimerization ?
21. What is inductive effect ?
22. Which is more reactive, formaldehyde or acetaldehyde ?

(8 × 2 = 16 Marks)

SECTION – C

*Short essay type : Answer any **SIX** questions.*

23. Briefly discuss the general methods of isolation of alkaloids.
24. Explain Hoffman's exhaustive methylation.
25. Explain mutual exclusion principle with an example.
26. Write a note on the physiological actions of alkaloids.
27. What is anti – Markownikoff's rule ?
28. Explain the structure of glucose.
29. What are SN^1 and SN^2 reactions in detail ?
30. Which is more stable, 3° carbocation or 1° carbocation ? Explain.
31. Briefly explain conformational analysis of ethane.

(6 × 4 = 24 Marks)

SECTION – D

*Long essay type : Answer any **TWO** questions.*

32. Write a detailed account on Raman spectroscopy.
33. i). Explain NMR spectroscopy in detail.
    ii). Explain the interconversion between glucose and fructose.
34. Explain in detail the preparation and properties of any two heterocyclic compounds.
35. Explain the isolation, physiological function and deficiency disease of Vitamin A.

(2 × 15 = 30 Marks)

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