SAINTS COLLEGE LIBRARY TRIVANDRUM

(Pages : 3) **F – 4025**

Reg. No. : .....

Name : .....

Third Semester B.Sc. Degree Examination, January 2019
(First Degree Programme Under CBCSS)
Complementary Course for Zoology
CH 1331.4 : ORGANIC AND BIOPHYSICAL CHEMISTRY
(2013 Admission – 2016 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

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

1. The reference chemical used in NMR spectroscopy is _____
2. How many types of H-NMR signals are observed in $CH_3COCH_2CH_2Cl$?
3. Give two examples of heterocyclic compounds.
4. Draw the most stable conformation of ethane.
5. Write the structure of an aldohexose.
6. Ascorbic acid is _____
7. Give the structure of L-Glyceraldehyde.
8. Deficiency disease caused by vitamin A is _____
9. Example for a fat soluble vitamin is _____
10. Secretion of liver is _____

(10×1=10 Marks)

P.T.O.

SECTION – B

Short answer type (**Not** to exceed **one** paragraph). Answer **any 8** questions from the following. **Each** question carries **two** marks.

11. Explain chemical shift with example.

12. What is larmour precession ?

13. How is nicotine isolated ?

14. Explain anti Markownikoff's Rule.

15. What are anomers ?

16. Explain mutarotation.

17. Draw the conformations of cyclohexane. Which is more stable ?

18. Explain S_N1 reaction.

19. Define hyper conjugation.

20. Assign the rule for EZ designation with example.

21. Which of the following compound show optical isomerism ? Why ?

    a) $CH_3 - \underset{\displaystyle Br}{\underset{|}{CH}} - CH_3$

    b) $CH_3 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2 - CH_3$

    c) $CH_3 - \underset{\displaystyle OH}{\underset{|}{CH}} - COOH$

22. Discuss the physiological importance of morphine. **(8×2=16 Marks)**

SECTION – C

Short essay type (**Not** exceed **120** words). Answer **any 6** questions from the following. **Each** question carries **4** marks.

23. Explain the basic principles of nuclear magnetic resonance spectroscopy.

24. Distinguish pure ethanol and moisturized ethanol by H-NMR.

25. How is fructose converted to glucose ? Give details.

26. How is connine obtained ?

27. Explain mutual exclusion principle.

28. Write note on asymmetric synthesis.

29. Explain deficiency disease caused by Vitamin A_1, Vitamin C, Vitamin D and Vitamin K.

30. Define inductive effect with example.

31. Explain Hoffmann's exhaustive methylation. **(6×4=24 Marks)**

SECTION – D

Long essay. Answer **any 2** questions from the following. **Each** question carries **fifteen** marks.

32. Explain the principle and applications of Raman spectroscopy.

33. Write notes on (a) Steroids (b) Cholesterol (c) Bile (d) Artificial hormone (e) Vitamin A_2 and Vitamin B.

34. Discuss one method for the preparation and properties of (a) furan (b) pyrrole (c) thiophene and (d) pyridine.

35. Explain with suitable example Inductive effect, Electromeric effect, Mesomeric effect and Steric effect. **(2×15=30 Marks)**