B – 3707

Reg. No. : .....

Name : .....

Third Semester B.Sc. Degree Examination, January 2017
First Degree Programme under CBCSS
COMPLEMENTARY COURSE FOR ZOOLOGY
CH 1331.4 : Organic and Biophysical Chemistry
(2013 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Each question carries **one** mark.

Answer **all** questions (Answer in **one** word /sentence) :

1. The optical inactivity of racemic mixture is due to _____
2. _____ is the most common steroid found in animal tissues.
3. Write the structural formula of (Z)-1-Bromo-1-Chloro-2 Iodo ethylene.
4. Give an example of a neutral nucleophile.
5. Give the name of the vitamin which is produced in the body by irradiation of skin with sunlight.
6. Pyridine reacts with phenyl lithium to form _____
7. Draw the configurations of aldotriose.
8. How many kinds of proton are in $(CH_3)_2CHCH_2CH_3$?
9. An object lacking plane of symmetry is called _____
10. _____ is a fat soluble vitamin.

(10×1=10 Marks)

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SECTION – B

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

11. Why trichloroacetic acid is more acidic than acetic acid ?
12. What are the disadvantages of biochemical method of resolution ?
13. How will you isolate nicotine from tobacco ?
14. Define the terms epimer and epimerization.
15. Sketch the NMR spectrum of ethanol.
16. What do you mean by conformation ? How does it differ from configuration ?
17. Define the term chirality. Give one example of a chiral molecule.
18. Draw the pyranose structure of glucose and fructose.
19. Give any two important functions of cholesterol.
20. What is a steroid ? Give any one example of a steroid hormone.
21. Draw the structure of Coniine. How it is harmful to the body ?
22. What is Walden inversion ?

(8×2=16 Marks)

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SECTION – C

Short essay (**Not** to exceed **120** words) :
Answer **any six** questions from the following :
Each question carries **four** marks.

23. Compare electromeric effect and inductive effect.
24. What are stoke lines and anti stoke lines ? Which is more intense ? Give reason.
25. Write the method of conversion of fructose to glucose.
26. Briefly discuss principle of NMR spectroscopy.

27. Write a note on the source and deficiency diseases of Vitamins A, C, E and K.

28. Briefly discuss the optical activity of ortho substituted Biphenyls.

29. Write any three electrophilic substitution reactions given by pyrrole.

30. Predict the major products and explain the reaction mechanism.

$CH_3CH = CH_2 \xrightarrow{HBr/Peroxide}$

31. What is an alkaloid ? How it is isolated from plants ? **(6×4=24 Marks)**

SECTION – D

Answer **any two** questions from the following :

Each question carries **fifteen** marks.

32. What is S_N2 reaction ? Explain its mechanism and stereochemistry. Briefly discuss the factors effecting it.

33. Discuss the conformational analysis of n-Butane and cyclohexane and propane.

34. a) Explain the quantum theory of Raman spectroscopy.

    b) Briefly discuss the advantages and disadvantages of Raman spectroscopy.

35. Write a note on the methods of preparation and any four electrophilic substitutions given each by furan and pyridine. **(15×2=30 Marks)**

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