(Pages : 3) **D – 3091**

Reg. No. : .....

Name : .....

Third Semester B.Sc. Degree Examination, December 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

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

1. What is chemical shift ?
2. Aromaticity of an organic compound may be easily distinguished by _____ spectroscopy.
3. Why tertiary halide does not undergo SN^2 reaction ?
4. Give the condition for optical isomerism.
5. Write the selection rule for rotational spectrum.
6. Draw the Newman's projection formula for the conformations of ethane.
7. Write the structure of L-glyceraldehyde.
8. Alkaloids occur chiefly in
9. Give an example for a reducing sugar.
10. Write the structure of pyrrole.

(10×1=10 Mark

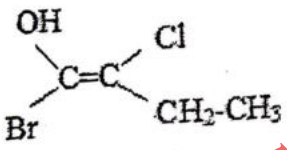
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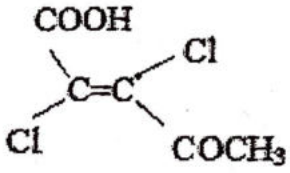
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SECTION – B

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

11. Predict $1H^1$ nmr of 2-butanone.
12. How keto-enol tautomerism can be identified by nmr spectroscopy ?
13. Name the products formed when propene on treatment with HCl. Explain the reaction.
14. Draw the structure of coniine.
15. Discuss the importance of morphine.
16. What is mutarotation ?
17. What is Raman Effect ? Explain with example.
18. Define inductive effect with example.
19. Assign EZ designation.

a) 

b) 

20. Explain steric effect with example.
21. What are enantiomers ? Give example.
22. Explain mutual exclusion principle. **(8×2=16 M**

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SECTION – C

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

23. Explain shielding and deshielding in nmr.
24. What is spin-spin coupling ? Explain with the help of propylbromide.
25. What are vitamins ? How are they classified ?

26. Discuss the function and deficiency disease of Vitamins B and C.

27. Distinguish between anomers and epimers.

28. What is meant by racemic mixture ? What is resolution ? Discuss chemical method for resolving a racemic mixture.

29. Draw and explain the Newman projection formula for the different conformation of n-butane.

30. Discuss the mechanism of SN^1 and SN^2 reaction.

31. Write note on asymmetric synthesis. **(6×4=24 Marks)**

SECTION – D

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

32. Define an alkaloid. What are the general characteristics of alkaloids ? Explain the physiological action of nicotine.

33. a) Write the structure of Vitamin A1, B2 and C.
    b) Write the method of preparation of furan, thiophene and pyridine.

34. How will you convert glucose to fructose and vice versa ?

35. Write notes on the quantum theory of Raman Effect. **(2×15=30 Mark**

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