31A

D3BCH1702 (S4) (PAGES 2) Reg. No.....

Name: .....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022

(Supplementary 2017 & 2018 Admissions)

CHEMISTRY: COMPLEMENTARY COURSE FOR PHYSICS, BOTANY AND ZOOLOGY

ACHE3C03T: ORGANIC CHEMISTRY

Time: 3 Hours **Maximum Marks: 64**

SECTION A: Answer all questions. Each carries 1 mark.

1. The optical isomers which are not mirror images are called.....
2. The pH at which the zwitter ion has no charge is known as .....
3. Homolytic cleavage of covalent bond produces.....
4. The number of π - electrons in benzene molecule is .....
5. The change in specific rotation of sugar solution with time is called.....
6. The chemical name of TNT is.....
7. Draw the structure of nicotine.
8. The electrophile in an aromatic nitration reaction is .....
9. Methyl orange is an ..... Dye.
10. Guanine pairs with ..... in DNA.

(10 x 1 = 10 Marks)

SECTION B: Answer any 7 questions. Each carries 2 marks.

11. Discuss the stability of allyl cation.
12. Give the method of preparation of benzene diazonium chloride.
13. What is meant by saponification ?
14. Which is more stable 1-butene or 2-butene ? Why ?
15. Draw the conformations of ethane.
16. What are epimers ?
17. What is Hofmann's bromamide reaction ?
18. What are electrophiles ? Give any two examples.
19. How is phenolphthalein prepared ?
20. What is meant by denaturation of proteins ?

(7 x 2 = 14 Marks)

(PTO)

SECTION C: Answer any 4 questions. Each carries 5 marks.

21. Explain the nucleophilic addition reactions of carbonyl compounds with HCN and $NaHSO_3$.
22. Draw the conformation of cyclohexane and explain its stability.
23. Explain the order of acidity of Phenol, p-nitrophenol and p-methoxyphenol.
24. What are the differences between DNA and RNA?
25. Explain the structure and stability of benzene.
26. What are essential oils ? How are they isolated ?

(4 x 5 = 20 Marks)

SECTION D: Answer any 2 questions. Each carries 10 marks.

27. What is inductive effect ? Discuss its application in explaining the acidity of aliphatic carboxylic acids.
28. Discuss the mechanism, kinetics and stereochemistry of SN^1 reactions.
29. (a) Explain the various methods used for the resolution of racemic mixture.
    (b) Discuss the classification of amino acids.
30. (a) Discuss the basicity of aniline, p-nitroaniline and p-anisidine.
    (b) Explain the mechanism of sulphonation of benzene.

(2 x 10 = 20 Marks)