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VI Semester B.Sc. Degree Examination, July/August- 2024

CHEMISTRY

Organic Chemistry and Spectroscopy - II

Paper : VIII

(NEP, CBCS Scheme 2023-24 onwards)



Time : 2 ½ Hours

Maximum Marks : 60

**Instructions to Candidates:**

1. Question paper consists of three parts. Answer all the parts.
2. Write chemical equations and diagrams wherever necessary.

**PART - A**Answer any **FIVE** of the following questions. Each question carries 2 marks.

(5×2=10)

1. What are antimalarial drugs? Give an example.
2. How is Pyrrole prepared from acetylene?
3. Write Haworth structure of lactose.
4. State isoprene rule.
5. Explain absolute specificity of an enzyme.
6. What are Chromophores? Give an example.
7. What is spin - spin splitting in NMR spectroscopy?

**PART - B**Answer any **FOUR** of the following questions. Each question carries 5 marks.

(4×5=20)

8. How is citral synthesised from methyl heptenone? (5)
9. a. How is bakelite manufactured?  
b. Write any two applications of teflon. (3+2)
10. a. Mention any three biological importance of triglycerides.  
b. Define iodine number. Write its significance. (3+2)

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11. a. What is Peptide bond? Write the structure of a dipeptide.  
b. How do amino acids react with Sanger's reagent? (3+2)
12. a. Explain the influence of conjugation on the UV absorption spectroscopy with examples.  
b. What is hypsochromic shift? Give an example. (3+2)
13. a. Explain nuclear deshielding and nuclear shielding effects.  
b. How is IR spectrum used to distinguish between free -OH group and hydrogen bonded -OH group? (3+2)

**PART - C**

Answer any **THREE** of the following questions. Each question carries **10** marks.

(3×10=30)

14. a. Discuss the aromaticity of thiophene.  
b. How is Aspirin prepared from phenol?  
c. Give a nucleophilic substitution reaction of Pyridine. (4+4+2)
15. a. Describe the synthesis of nicotine from succinimide.  
b. How is glucose converted to fructose?  
c. What are epimers? Give example. (4+4+2)
16. a. Write the general principles of green chemistry.  
b. Mention the source and deficiency symptoms of Vitamin - E and Vitamin - H.  
c. Write the structure of Lecithin. (4+4+2)
17. a. Describe the classification of  $\alpha$ -aminoacids.  
b. What is denaturation of proteins? Mention the factors that causes denaturation.  
c. Write any two applications of Polyvinyl acetate. (4+4+2)
18. a. Explain the types of electronic transitions that occur in UV spectroscopy with examples.  
b. Explain the infrared spectra of acetaldehyde.  
c. What is chemical shift? How is it expressed? (4+4+2)
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