



Date: 21-11-2024

Dept. No.

Max. : 100 Marks

Time: 01:00 pm-04:00 pm

**SECTION A**

**Answer ANY FOUR of the following**

**4 x 10 = 40 Marks**

1. Explain the Gabriel's phthalimide and Strecker synthesis for preparing  $\alpha$ -amino acids.
2. Discuss the synthesis of peptides using the carbobenzoxy method.
3. Describe the Lock and Key model and the Induced Fit model of enzyme action.
4. Summarize the TCA cycle and its role in cellular respiration.
5. Identify the different types of RNA and their roles in protein synthesis.
6. Outline the general methods for determining the structure of alkaloids.
7. Elucidate the structure of coniine.
8. What are the general methods of synthesis for anthocyanins? Explain.

**SECTION B**

**Answer ANY THREE of the following**

**3 x 20 = 60 Marks**

9. a. Describe Sanger's and Edman's methods for determining the C- and N-terminal residues of proteins. (10)  
b. Discuss the primary and secondary structures of proteins. (10)
10. a. Explain the mechanism of inhibition in enzymes. (10)  
b. Define: (i) Iodine value (ii) Acid value (iii) Rancidity (iv) Polenske number. (10)
11. a. Compare and contrast DNA and RNA in terms of structure and function. (10)  
b. Explain the phenomenon of mutarotation and describe the mechanism behind it. (10)
12. a. Classify terpenoids based on their structure and functional groups. (10)  
b. Discuss the synthesis of vitamin A. (10)
13. a. Describe the structural elucidation of cyanidin chloride. (10)  
b. Highlight the biological functions of flavones. (10)
14. a. Explain the  $\beta$ -oxidation of fatty acids. (10)  
b. Differentiate the structural characteristics of flavones and flavonols. (10)

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