LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **CHEMISTRY**

FIFTH SEMESTER – **APRIL 2023**

UCH 5601 – BIOCHEMISTRY AND NATURAL PRODUCTS

Date: 15-05-2023 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

Part-A

Answer ALL questions. **(10 x 2= 20)**

1. State the functions of hydrofluoric acid in solid phase polypeptide synthesis.
2. How is protein identified by ninhydrin test?
3. What are isoenzymes?
4. Define iodine value of an oil.
5. Differentiate amylose from amylopectin.
6. Distinguish DNA from RNA.
7. Write names of the various heterocyclic entities present in alkaloids.
8. State Ingold's special isoprene rule.
9. Distinguish anthocyanin from anthocyanidin by providing examples of molecular structures.
10. Mention any two medicinal uses of flavonoids.

Part-B

Answer any EIGHT questions. **(8 x 5 = 40)**

11. Discuss Strecker's synthesis.
12. Suggest various methods of isolation of amino acids obtained from natural sources.
13. How is N-terminal analysis of proteins carried out? Explain.
14. Discuss the mechanism of co-enzyme action.
15. What are phospholipids? Explain the types of phospholipids.
16. What are anomers? Explain with examples.
17. Explain the replication of DNA in brief.
18. How is D-glucose converted to D-mannose? Explain.
19. Explain the structural elucidation of papavarine.
20. Explain the classification of terpenoids.
21. Describe the role of spectral techniques in the characterization of a flavonone.
22. Explain the synthesis of hirsutidin chloride.

Part-C

Answer any FOUR questions. **(4 x 10 = 40)**

23. Describe the steps involved in solid phase Merrifield synthesis.
24. Explain the different types of inhibition reactions with suitable examples.
25. What is mutarotation? Explain with an example.
26. Draw the double helical structure of DNA and explain the salient features.
27. How will you determine the various functional groups present in alkaloids?
28. Explain the structural elucidation of quercetin and outline any one method of synthesis of quercetin.

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