LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.SC. DEGREE EXAMINATION – **CHEMISTRY**

FIFTH SEMESTER – **APRIL 2022**

UCH 5601 – BIOCHEMISTRY AND NATURAL PRODUCTS

Date: 27-06-2022 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

ANSWER ALL THE QUESTIONS. **(10 x 2 = 20 Marks)**

1. What is Ninhydrin Test?
2. How will you test the presence of proteins using Biuret test?
3. Differentiate active site and allosteric site of an enzyme.
4. Define Reichert-Meissel value of a fat.
5. Define mutarotation.
6. Draw the structure of sucrose.
7. State isoprene rule.
8. What is the action of zinc dust on alkaloids?
9. Mention the health benefits of flavonoids.
10. How is anthocyanidin prepared from coumarin?

PART – B

ANSWER ANY *EIGHT* QUESTIONS **(8 x 5 = 40 Marks)**

11. Compile the chemical changes taking place in Urea cycle.
12. Discuss the induced fit model of mechanism of enzyme action.
13. Describe the double helical structure of DNA.
14. Give the structural elucidation of citral.
15. Discuss the synthesis of peptides by Sheehan and Merrifield methods.
16. Explain the classification and significance of phospholipids.
17. Discuss the mechanisms of Lock and Key model of enzymatic action.
18. Differentiate reducing and non-reducing sugars.
19. Give any five differences between DNA and RNA.
20. What is Hofmann's exhaustive methylation? Explain with suitable example.
21. How is UV spectroscopy useful in the structural elucidation of terpenoids?
22. Discuss the nomenclature of steroids.

PART – C

ANSWER ANY *FOUR* QUESTIONS **(4 x 10 = 40 Marks)**

23. Explain the separation and purification of proteins by any one method in detail.
24. Write short notes on competitive, non-competitive and allosteric inhibition of enzymes with suitable examples.
25. Illustrate and explain the TCA cycle.
26. Elucidate the structure of nicotine.
27. Elucidate the structure of quercetin and explain its synthesis.
28. Enumerate the steps involved in Barbier-Bouveault-Tiemann's synthesis of Citral.

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