



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – NOVEMBER 2022

UCH 5601 – BIOCHEMISTRY AND NATURAL PRODUCTS

Date: 30-11-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

Answer ALL questions:

(10 x 2 = 20 Marks)

1. Proteins give a positive biuret test. Justify.
2. Differentiate essential and non-essential amino acids.
3. Outline trans-esterification.
4. How isoenzymes differ from enzyme?
5. Mention the purine bases.
6. Define mutarotation.
7. How are alkaloids classified?
8. State isoprene rule.
9. Why are some leaves red in colour?
10. What are flavones?

PART – B

Answer any EIGHT questions:

(8 x 5 = 40 Marks)

11. How will you determine the structure of protein by Sanger's method?
12. Elaborate the preparation of amino acids by Gabriel's phthalimide process.
13. Discuss the mechanism of lock and key model of enzymatic reaction.
14. List out the characteristics of an enzyme.
15. Summarize the steps involved in biosynthesis of fatty acid.
16. Mention any five differences between reducing and non-reducing sugars.
17. Discuss the structural features of DNA and RNA.
18. Draw the Haworth projection and chair conformation of D- glucose.
19. Elucidate the structure of coniine.
20. Explain Ladenberg synthesis of piperic acid.
21. Discuss the structural elucidation of pelargonidin chloride and explain the method of synthesis of the same.
22. Enumerate the biological functions of flavonoids.

PART – C

Answer any FOUR questions:

(4 x 10 = 40 Marks)

23. a) Discuss the separation and purification of proteins by any one method in detail. (5+5)
b) Describe the classification of proteins based on their structure.
24. Write short notes on competitive, non-competitive and allosteric inhibition of enzymes with suitable examples.
25. a) Explain the types and functions of RNA. (4+6)
b) Highlight the significances of the citric acid (TCA) cycle with illustration.
26. Elucidate the structure of Papaverine.
27. a) Discuss the structural elucidation of vitamin-A. (5+5)
b) Establish the structure of citral.
28. a) Illustrate the functions of anthocyanins in plants and humans. (5+5)
b) Explain Robinson's synthesis of flavones.

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