

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – NOVEMBER 2019

16/17UCH5ES01 – BIOCHEMISTRY AND NATURAL PRODUCTS

Date: 06-11-2019

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

Part-A

Answer ALL questions.

(10 × 2= 20)

1. Differentiate between plant and animal cells.
2. Define the term isoelectric point.
3. Why are enzymes group specific? Prove this with an example.
4. What is 'saponification value' of oil?
5. Mention the differences between amylose and amylopectin.
6. Define the term 'electron transport chain'.
7. What are alkaloids? How are they classified?
8. How are terpenoids extracted by expression method?
9. Give an example for anthocyanins and mention its function.
10. Illustrate the basic structure of steroids and indicate the numbering pattern.

Part-B

Answer any EIGHT questions.

(8 × 5= 40)

11. Discuss any two methods of synthesis of α -amino acids.
12. Explain the secondary structure of proteins.
13. Compare the synthesis of peptides by solution and solid phases.
14. What are co-enzymes? Explain the mechanism of coenzyme action with an example.
15. Explain the classification and significance of phospholipids.
16. Define the term rancidity. Explain the types of rancidity and method of prevention.
17. Draw and explain the double helical structure of DNA.
18. What is a transcription process? Explain its significance in protein biosynthesis.
19. Describe the structural elucidation of Coniine.

20. Outline the synthesis of menthol from m-cresol.
21. Explain the general structural elucidation of anthocyanins.
22. Write a note on biosynthesis of cholesterol.

Part-C

Answer any FOUR questions.

(4 × 10= 40)

23. Discuss the catabolism of amino acids in the living organisms.
24. Write short notes on competitive, non-competitive and allosteric inhibition of enzymes with suitable examples.
25. What is glycolysis? Explain the steps with the name of the enzymes involved.
26. a) Explain the following:
 - i) DNA polymorphism
 - ii) Oxidative phosphorylation
 - b) Write a note on the stereochemistry and nomenclature of steroids. (5+5)
27. a) Describe the synthesis of nicotine. (6)
 - b) Write a note on isoprene rule (4)
28. a) Explain the Robinson synthesis of anthocyanins (5)
 - b) Compile the methods used for the determination of the ring structure of cholesterol. (5)
