



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

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

**FIFTH SEMESTER – NOVEMBER 2017**

**CH 5404 - BIO CHEMISTRY**

Date: 15-11-2017  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

**Part-A**

*Answer ALL questions.*

**(10 × 2= 20)**

1. What are organelles?
2. Why do solid amino acids conduct electricity?
3. What are coenzymes?
4. Mention any two properties of enzyme.
5. What is meant by oxidative rancidity?
6. Define saponification value and iodine value.
7. What is meant by glycolysis?
8. How do epimers differ from anomers?
9. Draw the structure of adenine and guanine.
10. What is meant by mutation?

**Part-B**

*Answer any EIGHT questions.*

**(8 × 5= 40)**

11. Explain the synthesis of peptides by solution technique.
12. Discuss the process of denaturation and renaturation of protein molecules.
13. Describe the mechanism of urea cycle.
14. Explain the factors influencing the rate of enzyme reaction.
15. Account for the stereochemical specificity of enzyme with an achiral substrate whose product is chiral.
16. Explain the biosynthesis of unsaturated fatty acids.
17. Write the biological importance of lipids.
18. Write short notes on reducing sugars and non-reducing sugars.
19. How will you convert the Fischer projection of  $\alpha$ -D-glucopyranose into a chair conformation through Haworth projection? Explain.
20. Differentiate DNA and RNA with any five points based on their functions.

21. Write a note on DNA replication.
22. Draw the structures for the nucleosides that can be obtained from DNA and RNA.

**Part-C**

*Answer any FOUR questions.*

**(4 × 10= 40)**

23. Discuss the classification, properties and structure of proteins.
- 24a. Explain the lock and key model and induced fit model of mechanism of enzyme action.
  - b. Discuss the types of mechanism of inhibition. (5+5)
- 25a. Write short note on “prosthetic groups of enzymes”.
  - b. Explain the following quantitative tests for lipids:
    - (i) Richert-Meissl number
    - (ii) Acetyl number
    - (iii) Acid number
26. How are lipids classified? Explain the structure of the following lipids with example.
  - (i) Lecithins
  - (ii) Cephalins
  - (iii) Plasmologens
  - (iv) Steroids
27. Discuss the various steps involved in the citric acid cycle.
28. Discuss the transcription and translation from the biosynthesis of proteins and *mRNA*.

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