LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **NOVEMBER 2016**

CH 5404 – BIO CHEMISTRY

Date: 11-11-2016 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

Part-A

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

1. Mention the significance of essential amino acids with an example.
2. Draw the structure of Zwitter ionic form of an amino acid.
3. What are oxidoreductases? Give an example.
4. What are ATP and FAD?
5. Define Reichert-Meissl number of a fat.
6. What is saponification value of an oil?
7. Draw the structure of cholesterol.
8. Mention the differences between amylose and amylopectin.
9. Why DNA is the genetic material, but not RNA?
10. What are purine bases? Give the structure.

Part-B

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

11. Explain the following:
    a. Denaturation of proteins b. primary structure of proteins.
12. How is N-terminal amino acid of proteins determined by Sanger's method? Discuss.
13. Describe any two methods of preparation of amino acids.
14. Explain the factors affecting the enzyme activity.
15. Differentiate between competitive and non-competitive inhibition with suitable examples.
16. What are phospholipids? Explain the types of phospholipids.
17. Explain the steps involved in the biosynthesis of lipids.
18. Define mutarotation. Explain mutarotation of glucose.
19. Mention the differences between the plant and animal cells.
20. What are carbohydrates? Explain the classification of carbohydrates with examples.
21. Explain the base pairing of purine and pyrimidine in Watson and Crick model of DNA.
22. Briefly discuss the mechanism of electron transport process.

Part-C

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

23 a. Write a short note on the process of replication of DNA. (5)
   b. Define co-enzymes. Explain the mechanism of co-enzyme action. (5)
24 a. Discuss briefly the β-oxidation theory of fatty acids. (5)
   b. Explain the salient features of secondary structure of proteins. (5)
25. Explain the series of reactions involved in TCA cycle along with the enzymes involved and the energy yield.
26 a. How gel filtration technique is useful in protein separation? Explain. (5)
   b. Discuss the steps involved in the translation process of protein biosynthesis. (5)
27. Explain various steps involved in glycolysis along with the enzymes involved in each step.
28. Derive the Michaelis-Menten equation. Explain the kinetics of enzyme action.

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