Q.P. Code – 42636

Sixth Semester B.Sc. Degree Examination, April/May 2019

(CBCS Scheme)

Chemistry

Paper VIII – BIOCHEMISTRY

Time : 3 Hours] *[Max. Marks : 90*

Instructions to Candidates :

1. *The questions paper has 2 parts A & B.*
2. *Both the parts should be answered.*
3. *Write equations/reactions wherever necessary.*

PART – A

Answer any **TEN** of the following questions. Each question caries 2 marks.

(10 × 2 = 20)

1. What are essential fatty acids? Give an example.
2. What are peptides? Give the biological importance of oxytocin.
3. Write the partial structure of polyribonucleotide.
4. What is an active site? Give its characteristics.
5. Give the importance of bioinorganic chemistry.
6. What is energy coupling?
7. Mention the stages in catabolism.
8. Calculate the production of ATP's in glycolysis.
9. Explain decarboxylation reaction with an example.
10. Give any two characteristics of hormones.
11. Mention the biological role of glucagon and somatrotropin.
12. What are vitamins? How are they classified?

PART – B

Answer any **SEVEN** of the following questions. Each question carries **10** marks : **(7 × 10 = 70)**

13. (a) What are acylglycerols? Write the structure of tripalmitin. Give the biological importance of triacylglycerols.

(b) Write the structure and biological importance of 3-sn-phosphotidylcholine.

(c) Write the general formula of amino acids. Give acylation reaction of an amino acid. **(4 + 3 + 3)**

14. (a) Write a note on rancidity of oils and fats.

(b) How is an amino acid prepared by Gabriel's phthalimide synthesis?

(c) Explain tertiary structure of proteins. **(4 + 3 + 3)**

15. (a) What is the primary structure of proteins? Explain the determination of primary structure of peptides by Edmann degradation.

(b) How is the molecular weight of protein determined by electrophoresis?

(c) Explain isoelectric point by taking an example. **(4 + 3 + 3)**

16. (a) What are nucleosides and nucleotides? Write the structure of adenosine and cytidine mono phosphate.

(b) Explain the central dogma of molecular biology.

(c) Discuss the semi conservative mechanism of replication of DNA. **(4 + 3 + 3)**

17. (a) Illustrate the classification of enzymes with examples.

(b) Explain enzyme specifying with an example.

(c) What are the different types of RNA? Give their biological role. **(4 + 3 + 3)**

18. (a) Explain any two factors affecting the rate of enzyme catalysed reactions.

(b) What is enzyme inhibition? Explain competitive inhibition with an example.

(c) Mention the role of sodium and potassium in biological system. **(4 + 3 + 3)**

19. (a) What are exergonic and endergonic reactions? Give an example.

    (b) Mention the role of Mg^{2+} in energy production and in chlorophyll.

    (c) Give the role of Ca^{2+} in blood clotting and structural role in bones.

(4 + 3 + 3)

20. (a) What is electron transport chain? Give its schematic representation.

    (b) Explain substrate level phosphorylation with an example.

    (c) What is transamination reaction? Give an example. **(4 + 3 + 3)**

21. (a) Give two reactions of glycolysis in which ATP's are produced.

    (b) How is α-ketoglutarate converted into succinyl CoA in Kreb's cycle? Mention the conditions of the reaction.

    (c) Calculate the ATP yield in β – oxidation of palmitic acid. **(4 + 3 + 3)**

22. (a) Give the reactions of β – oxidation of fatty acids.

    (b) Explain the general mechanism of hormonal action.

    (c) Name the disease caused due to the deficiency of the following vitamins :

    (i) Vitamin C

    (ii) Vitamin B and

    (iii) Vitamin A.

(4 + 3 + 3)
