SM – 355

VI Semester B.Sc. Examination, May/June 2018
(CBCS) (Fresh + Repeaters) (2016-17 and Onwards)
Paper – VIII : CHEMISTRY
Biochemistry

Time : 3 Hours Max. Marks : 70

Instructions : *1) The question paper has **two** parts. Answer **both** the Parts.*
*2) Write equations and diagrams **wherever** necessary.*

PART – A

Answer **any eight** of the following questions. **Each** question carries **two** marks. **(8×2=16)**

1. Mention the contributions of the following scientists to the development of biochemistry.
   i) Louis Pasteur
   ii) Hans Kreb.
2. Write the Haworth structure of N-acetyl β-D-glucosamine.
3. Write the structure of Lysine.
4. Define saponification number. Give its significance.
5. What are allostearic enzymes ? Give an example.
6. Give the structure of a nucleotide present only in RNA.
7. Give the principle of electrophoresis.
8. Explain energy coupling in biological systems with a suitable example.
9. What is glycolysis ?
10. Explain group specificity with an example.
11. Write the structure of glycylalanine.
12. What are liposomes ? Give an example.

P.T.O.

PART – B

Answer **any nine** of the following questions. **Each** question carries **six** marks. **(9×6=54)**

13. a) Discuss the properties of water which makes it the solvent of life.
    b) Give the principle of thin layer chromatography. Mention two applications. **(3+3)**

14. a) Name the storage polysaccharide present in animals and give its partial structure. How does it differ from amylopectin ?
    b) Write the structure of α-D-fructose 1, 6-diphosphate. **(4+2)**

15. a) i) Write the structure of phosphatidyl choline.
        ii) Mention the biological functions of phospholipids.
    b) Give the biological role of HDL and LDL cholesterol. **(4+2)**

16. a) Explain renaturation of protein in Aufinsen's experiment with ribonuclease.
    b) Name the forces that stabilizes tertiary structure of a protein. **(3+3)**

17. a) How does the following factors affect rate of enzyme catalyzed reaction ?
        i) Effect of pH.
        ii) Effect of substrate concentration.
    b) Define active site of an enzyme. **(4+2)**

18. a) How are proteins classified based on biological functions ?
    b) Give the reaction of an amino acid with alcohol. **(4+2)**

19. a) Write any one irreversible step of the glycolytic pathway.
    b) How is pyruvate activated prior to its entry into the TCA cycle ?
    c) Calculate the total ATP produced by the complete oxidation of palmitic acid. **(2+2+2)**

20. a) Give the structural features of ATP, which makes it a high energy molecule.
    b) Explain substrate level phosphorylation with a suitable example. **(3+3)**

21. a) What are hormones ? How are they classified ? Give one example each.
    b) Explain hormonal action mediated by cyclic AMP. **(4+2)**

22. a) How are amino acids classified based on polarity of side chain ?

    b) Explain primary structure of a protein. (4+2)

23. a) Mention four salient features of Watson and Crick model of DNA.

    b) Give the protein nucleic acid interaction in chromatin. (4+2)

24. a) Give the structure of two purine bases present in nucleic acids.

    b) Write the enzymatic reaction for the conversion of malate to oxaloacetate. (4+2)

25. a) Explain briefly the mechanism of DNA replication.

    b) Define translation. (4+2)