2012

M.Sc.

1st Semester Examination

BIOCHEMISTRY

PAPER—BIC-101

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer all questions.

Group—A

1. Answer any five from the following questions : 5×2

(a) Write the difference between anomers and epimers.

(b) What are emulsions?

(c) What are globular proteins? Give two examples.

(d) What is Bohr's effect?
(e) Explain why proteins are normally precipitated by TCA and not by HCl in biochemical analysis.

(f) Why does galactose form different osazone than glucosazone?

(g) What do you know about "Isoprene rule"?

(h) State the difference between electron affinity & electronegativity.

Group—B

Answer any two from the following questions: 5×2

2. Describe the structure and function of FAD. 5

3. How does Hydroxyproline stabilize a collagen helix? What are cis and trans isomers of a peptide bond? 2.5×2

4. (a) Distinguish between homopolysaccharides and heteropolysaccharides. 3

(b) What is meant by reducing sugar? 1

(c) What do you mean by glycosidic bond? 1

C/12/M.Sc./1st Seme./BIC-101 (Continued)
5. What is Sanger’s reagent for protein sequencing? Why is it used for? State the significance of D-amino acids?

6. What significance does proteins hold in a cellular environment in relation to their structure function relationship? Name two hydrophobic and two hydrophilic amino acids. How can the amino acid sequence of a peptide be determined by Edman degradation?

7. Write down the chemical structures of purine and pyrimidine. How are they chemically stabilized into a double helix DNA molecule?

8. (a) What is apomyoglobin? How does it works to provide a hindered environment for heme iron.

   (b) Why are the aminoacid residues in proteins always a present in L-stereoisomeric form?

   (c) What amino acid residues must be present in relatively large numbers in histones? In what way do these residues contribute to the strong binding of histones to DNA?
9. (a) Differentiate among t RNA, m RNA and r RNA. What is Si RNA? 3+2

(b) What is informosome? 2

(c) What types of chemical bonding one present in DNA tripple helix? 3