A 309

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Third Semester

Industrial Biotechnology

IB 231 — BIOCHEMISTRY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Using a sugar molecule to define optical isomerism.

2. How is starch different from cellulose at molecular level?

3. Write the structure of any two negatively charged phospholipids.

4. Write the metabolic reactions in the biosynthesis of glycine.

5. What are branched chain amino acids and what are their roles in protein structure?

6. Draw the structure of AT and GC base pairs seen in nucleic acids.

7. What is transamination reaction?

8. What is meant by feed back regulation?

9. What are cofactors and draw the structure of two of them.

10. What is meant by quaternary structure?

PART B — (5 × 16 = 80 marks)

11. (i) Explain with the example an allosteric enzyme. (6)

(ii) Describe the regulatory mechanisms that operate to control intermediary metabolism. (10)

12. (a) Write an essay on the structure and properties of commonly found sugars associated with macromolecules.

Or

(b) What are the general physical and chemical characteristics of amino acids?

13. (a) Describe the biosynthesis of DNA in eukaryotic system.

Or

(b) Give the complete biosynthesis of cholesterol with molecular structure and describe the reactions that are targeted in therapeutics.

14. (a) Explain the salient features of three dimensional structure of protein.

Or

(b) Describe the structure function relationship of mRNA and tRNA.

15. (a) Write a comprehensive essay on energy-rich compounds and the energy flow in metabolism.

Or

(b) Write an essay on Pentose phosphate pathway.
