Bachelor of Science (B.Sc.) Semester–III (C.B.S.) Examination

BIOTECHNOLOGY (METABOLISM)

Paper—I

Time : Three Hours] [Maximum Marks : 50

Note :— (1) All questions are compulsory and carry equal marks.
(2) Draw structures and diagrams wherever necessary.

1. Describe Gluconeogenesis in detail. 10

OR

Write notes on :
(a) Entry of fructose into glycolysis. 5
(b) Anaerobic fate of pyruvate and its significance. 5

2. Describe TCA cycle and its regulation. 10

OR

Write notes on :
(a) Structure of mitochondria. 5
(b) ETC. 5

3. Describe the reactions of fatty acid-synthase complex. 10

OR

Write notes on :
(a) Ketogenesis. 5
(b) β-oxidation of oleic acid. 5

4. Describe the De Novo biosynthesis of purine ribonucleotides. 10

OR

Write notes on :
(a) Salvage pathways for purines. 2½
(b) Compartmentation of Urea cycle. 2½
(c) Transmethylation. 2½
(d) Decarboxylation of amino acids. 2½

5. Solve any **ten** :
(i) What is enthalpy ? 1
(ii) Define ketogenesis. 1
(iii) Name the complex of oxidative phosphorylation. 1
(iv) How many ATPs are produced in aerobic glycolysis ? 1
(v) Define Transamination. 1
(vi) What is meant by redox potential ? 1
(vii) What is Ketoacidosis ? 1
(viii) Write any one anaplerotic reaction. 1
(ix) Give any one example of multienzyme complex. 1
(x) Define Omega Oxidation. 1
(xi) Name the key regulatory enzyme of urea cycle. 1
(xii) Name the enzyme complex which converts ribonucleotides to deoxyribonucleotides. 1