NTK/KW/15 – 5849

Third Semester B. Sc. Examination

BIOTECHNOLOGY

Paper - I

(Metabolism)

Time : Three Hours] [Max. Marks : 50

N. B. : (1) All questions are compulsory and carry equal marks.
(2) Draw diagram if necessary.

1. Describe in detail the reactions of gluconeogenesis.

OR

Describe glycolysis in detail with its regulation. 10

2. Discuss ETC with its components and sites of ATP generation.

OR

Describe the TCA cycle in detail with its regulation. 10

3. (a) Explain the role of carnitine in fatty acid metabolism ? 5

(b) Describe βoxidation of palmitic acid. 5

OR

(c) Describe the fatty acid synthase complex. 5

(d) Write a note on ketogenesis. 5

4. (a) Describe the mechanism of transamination. $2\frac{1}{2}$

(b) Explain in brief links between urea cycle and citric acid cycle. $2\frac{1}{2}$

(c) Decarboxylation of amino acid gives rise to physiologically significant products. Justify the statement. $2\frac{1}{2}$

(d) Describe the salvage pathway for recycling of purine bases. $2\frac{1}{2}$

OR

(e) How does oxidative deamination differ from non oxidative deamination ? $2\frac{1}{2}$

(f) Add a note on metabolic disorders of urea cycle. $2\frac{1}{2}$

(g) What is transmethylation ? What is the significance of the reaction ? $2\frac{1}{2}$

(h) Describe the salvage pathway of pyrimidines. $2\frac{1}{2}$

5. Solve any **ten** :—

(i) Define free energy. 1

(ii) Define Redox potential. 1

(iii) Name two inhibitors of glycolysis. 1

(iv) What is proton motive force ? 1

(v) Define chemiosmosis. 1

(vi) What is anaplerotic reaction ? 1

(vii) What is ketoacidosis ? 1

(viii) Name the protein that acts as an anchor for the fatty acid chain during elongation. 1

(ix) What is omega oxidation ? 1

(x) Name the enzymes of urea cycle in proper sequence of appearance in the cycle. 1

(xi) Give the full form of PRPP. 1

(xii) Which coenzyme is required in the carboxylation reactions ? 1