NKT/KS/17/5150

Bachelor of Science (B.Sc.) Semester—IV (C.B.S.) Examination

MICROBIOLOGY (Metabolism)

Paper—I

Time : Three Hours] [Maximum Marks : 50

Note :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw diagrams where necessary.

1. Describe TCA cycle with its bioenergetics. 10

OR

Define metabolism. Explain ∑MP pathway in detail. 10

2. (a) Discuss Urea cycle. 5

(b) Give an account of glucogenic and ketogenic amino acids. 5

OR

(c) Comment on : Genetic code is degenerate and universal. 5

(d) Describe the elongation step in translation process. 5

3. Describe the process of oxidative phosphorylation in detail. 10

OR

Describe cyclic and non-cyclic photophosphorylation. 10

4. (a) DNA replication is semiconservative. Explain. 2½

(b) Write note on reverse transcription. 2½

(c) Write a note on omega oxidation. 2½

(d) Discuss the role of RNA polymerase in transcription. 2½

OR

(e) Explain knife and fork model. 2½

(f) Give the energetics of palmitic acid oxidation. 2½

(g) Describe elongation step in transcription. 2½

(h) Comment on : DNA template and RNA primer. 2½

5. Solve any **ten** :

(i) What are amphibolic pathways ? 1

(ii) Name any one inhibitor of pyruvate kinase. 1

(iii) Give the significance of ED pathway. 1

(iv) What is meant by proof reading ? 1

(v) What is conserved sequence ? 1

(vi) Give the role of superhelix relaxing protein. 1

(vii) What are nonsense codons ? 1

(viii) What is the role of peptidyl transferase ? 1

(ix) What is meant by formylation of methionine ? 1

(x) Define P:O ratio. 1

(xi) What is substrate level phosphorylation ? 1

(xii) What is high energy molecule ? 1