

NRT/KS/19/2101

Bachelor of Science (B.Sc.) Semester—III Examination
BIOTECHNOLOGY (Metabolism)
Optional Paper–I

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw diagram wherever necessary.

1. Describe Gluconeogenesis in detail. 10

OR

(a) Describe the entry of fructose into glycolysis. 5

(b) Write a note on creatine phosphate and phosphoenol pyruvate with their structures. 5

2. Describe Chemiosmotic theory of Oxidative Phosphorylation with suitable diagram. Describe the mechanism of proton-gradient generation. 10

OR

Describe the reactions of TCA Cycle in detail. 10

3. Describe the reactions of the Fatty Acid Synthase Complex. 10

OR

(a) Explain Ketosis and Ketoacidosis in Physiology and Pathology. 5

(b) Describe the synthesis of unsaturated fatty acids. 5

4. Describe urea cycle reactions in detail with its regulation. 10

OR

Write note on :—

(a) Salvage pathways of purines. 5

(b) Decarboxylation of amino acids. 5

5. Solve any ten of the following :—

(I) What is ΔG° ? 1

(II) What is the role of ATP in Metabolism ? 1

(III) What is Redox Potential ? 1

(IV) Name one inhibitor of ETC. 1

(V) F_1F_0 ATPase is involved in which process in the cell ? 1

(VI) The space between the two membranes of the mitochondria is known as _____. 1

(VII) Name the compound which transports fatty acids into the mitochondrial matrix for β -oxidation. 1

(VIII) Write the full form of ACP. 1

(IX) Define Ketogenesis. 1

(X) Urea Cycle takes place in which two parts of the cell ? 1

(XI) To act as a methylating agent, Methionine has to be converted to _____. 1

(XII) Write the full form of IMP. 1