

**KNT/KW/16/5150**

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

**MICROBIOLOGY (Metabolism)**

**Paper—I**

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw well labelled diagrams wherever necessary.

1. Describe TCA cycle and its regulation. 10

**OR**

Describe EMP Pathway and its regulation. 10

2. (a) Discuss rolling circle model for DNA replication. 5  
(b) Discuss general features of transcription. 5

**OR**

- (c) Discuss  $\beta$ -oxidation of palmitic acid. 5  
(d) Discuss the types of DNA polymerase in DNA replication. 5

3. Describe Urea Cycle. 10

**OR**

Discuss salient features of genetic code. 10

4. (a) Explain substrate level phosphorylation with suitable example. 2½  
(b) Discuss cyclic photophosphorylation. 2½  
(c) Discuss ATP-ADP cycle. 2½  
(d) Discuss energetics of oxidative phosphorylation. 2½

**OR**

- (e) Describe sites of oxidative phosphorylation in ETC. 2½  
(f) Discuss non cyclic photophosphorylation. 2½  
(g) Write an account of high energy compounds in metabolism. 2½  
(h) What is free energy ? How is it related to enthalpy and entropy ? 2½

5. Solve any **TEN** questions :—

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|---|---|
| (i) What is amphibolic pathway ?                        | 1 |
| (ii) What is the role of transaldolase in HMP pathway ? | 1 |
| (iii) Give the key enzyme in ED pathway.                | 1 |
| (iv) What is omega oxidation ?                          | 1 |
| (v) What is RNA primer ?                                | 1 |
| (vi) What is reverse transcription ?                    | 1 |
| (vii) What are glucogenic amino acids ?                 | 1 |
| (viii) What is the role of peptidyl transferase ?       | 1 |
| (ix) What is deamination ?                              | 1 |
| (x) What is P : O ratio ?                               | 1 |
| (xi) What is redox potential ?                          | 1 |
| (xii) What is proton gradient ?                         | 1 |