

**NTK/KW/15 – 5865**

**Fourth Semester B. Sc. Examination**

**MICROBIOLOGY**

**Paper – I**

**(Metabolism)**

Time : Three Hours ]

[ Max. Marks : 50

- N. B. : (1) All questions are compulsory and carry equal marks.  
(2) Draw diagrams wherever necessary.

1. Describe in detail EMP pathway and its regulation. 10

**OR**

Describe in detail TCA cycle along with energetics. 10

2. Describe in detail  $\beta$ -oxidation. 10

**OR**

Define replication. Describe the process of prokaryotic replication. 10

3. (a) Discuss the deamination of alanine and tyrosine. 5  
(b) Write a note on urea cycle. 5

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Contd.

**OR**

- (c) Describe the initiation of translation process. 5
- (d) Explain triplet codon, anticodon and degeneracy of codon. 5

4. (a) Write a note on cyclic photophosphorylation.  $2 \frac{1}{2}$
- (b) Explain substrate level phosphorylation.  $2 \frac{1}{2}$
- (c) Diagrammatically represent non-cyclic photophosphorylation.  $2 \frac{1}{2}$
- (d) Write a note on cytochromes.  $2 \frac{1}{2}$

**OR**

- (e) Give diagrammatic representation of Electron transport chain.  $2 \frac{1}{2}$
- (f) Explain high energy molecules with any two examples.  $2 \frac{1}{2}$
- (g) Discuss the events that take place in complex IV of ETC.  $2 \frac{1}{2}$
- (h) Compare photophosphorylation and oxidative phosphorylation.  $2 \frac{1}{2}$

5. Solve any **ten** :—

- (i) Why pentose phosphate pathway is known as HMP shunt pathway ? 1
- (ii) What are the net outputs of pentose phosphate pathway ? 1

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Contd.

(iii) Give the significance of PK pathway.	1
(iv) What are transcription termination factors ?	1
(v) Define omegaoxidation.	1
(vi) What is reverse transcription ?	1
(vii) What are termination codons ?	1
(viii) What is transamination ?	1
(ix) What is P site ?	1
(x) What is ubiquinone ?	1
(xi) What is ATPase complex ?	1
(xii) What is P/O ratio ?	1