

B.Sc. (CBCS Pattern) Semester-III  
**011A - Biotechnology Paper-I : Cell Metabolism**

P. Pages : 2

Time : Three Hours



**GUG/S/25/11618**

Max. Marks : 50

- 
- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw diagrams wherever necessary.

**1.** Describe in detail ATP-ADP cycle. **10**

**OR**

- a) Give brief account on phosphate potential. **2½**
- b) Write a note on concept of free energy. **2½**
- c) Write a note on redox potential. **2½**
- d) Write a note on concept of entropy. **2½**

**2.** Explain in detail TCA cycle and its regulation. **10**

**OR**

- a) Discuss bypass reaction for glyconeogenesis. **2½**
- b) Write a note on glycogenesis. **2½**
- c) Write a note on Hill reaction. **2½**
- d) Describe in brief photophosphorylation. **2½**

**3.** Describe in detail  $\beta$ -oxidation of fatty acid. **10**

**OR**

- a) Write a note on fatty acid synthase complex. **2½**
- b) Write short note on Gaucher's disease. **2½**
- c) Explain Ketosis. **2½**
- d) Write note on Tay-Sachs disease. **2½**

**4.** Describe Urea cycle in detail. **10**

**OR**

- |    |  |    |
|----|--|----|
| a) | Write a note on transmethylation.                                  | 2½ |
| b) | Write note on physiological important products of decarboxylation. | 2½ |
| c) | Explain in brief biosynthesis of purines.                          | 2½ |
| d) | Write a note on transamination.                                    | 2½ |

**5. Attempt any ten.**

- |    |   |   |
|----|---|---|
| a) | Define enthalpy.  | 1 |
| b) | Give any two examples of high energy compounds.                   | 1 |
| c) | Define energy charge.   | 1 |
| d) | Give any two inhibitors of glycolytic pathway.                    | 1 |
| e) | How many ATP are synthesized in TCA cycle.                        | 1 |
| f) | Define oxidative phosphorylation.                                 | 1 |
| g) | What is Niemann Pick disease.                                     | 1 |
| h) | What is Fabry's disease.  | 1 |
| i) | What is Ketoacidosis.   | 1 |
| j) | What is the process of formation of new amino acid called?        | 1 |
| k) | Give any one example of metabolic disorder related to urea cycle. | 1 |
| l) | What are pyrimidines.   | 1 |

\*\*\*\*\*