

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

P. Pages : 2

Time : Three Hours



**GUG/W/24/11618**

Max. Marks : 50

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**1.** What is high energy bond? Discuss in detail about compounds having high energy bond. **10**

**OR**

- a) Write a note on free energy. **2½**
- b) Write a note on ATP-ADP cycle. **2½**
- c) Give a brief account on Phosphate potential. **2½**
- d) Write a note on redox potential. **2½**

**2.** What is aerobic respiration? Write in detail about glycolytic pathway and it's regulation. **10**

**OR**

- a) Write a note on glycogenesis. **2½**
- b) Give a brief account on photophosphorylation. **2½**
- c) Discuss bypass reactions for gluconeogenesis. **2½**
- d) Write a note on electron transport chain. **2½**

**3.** Describe the process of fatty acid biosynthesis in detail. **10**

**OR**

- a) Give an outline of  $\beta$ -oxidation of fatty acids. **2½**
- b) Write a note on  $\alpha$ -oxidation of fatty acids. **2½**
- c) Give a brief account on Gaucher's disease. **2½**
- d) Add a note on Ketogenesis. **2½**

**4.** Discuss urea cycle in detail. **10**

**OR**

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|---|----|
| a) Write a note on metabolic disorders of urea cycle.             | 2½ |
| b) Give a brief account on trans amination.                       | 2½ |
| c) Discuss physiologically important products of decarboxylation. | 2½ |
| d) Write a note on biosynthesis of purines.                       | 2½ |

**5. Solve any ten (1 mark each)**

- a) What is entropy.
- b) Give any two examples of high energy compounds.
- c) What is enthalpy.
- d) Which enzyme is used in first step of glycolysis.
- e) What is glycogenolysis.
- f) What is oxidative phosphorylation.
- g) What is Ketosis.
- h) Write any two diseases related to fat metabolism.
- i) What is ketoacidosis.
- j) What is transmethylation.
- k) Write any two metabolic disorders related to urea cycle.
- l) What is transamination.

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