

B.Sc. (CBCS Pattern) Semester-III  
**USMBT05 - Microbiology Paper-I - Microbial Physiology and Metabolism**

P. Pages : 2

Time : Three Hours



**GUG/W/24/11614(S)**

Max. Marks : 50

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**1.** Write in detail about Bacterial Growth Curve. **10**

**OR**

a) Write about Binary Fission. **2½**

b) Explain Turbidostat method for continuous culture. **2½**

c) Classify the bacteria based on oxygen requirement. **2½**

d) Describe the Hemocytometer for bacterial count. **2½**

**2.** Write about different types of enzyme inhibition. **10**

**OR**

a) Explain the Lock and Key model. **2½**

b) Write general characteristics of enzyme. **2½**

c) Derive the LB equation. **2½**

d) Describe the effect of pH on enzyme activity. **2½**

**3.** Explain the EMP pathway in detail. **10**

**OR**

a) Write about Urea Cycle. **2½**

b) Describe Beta oxidation of fatty acid **2½**

c) Write about Anaplerotic reaction. **2½**

d) Give the outline of TCA cycle **2½**

**4.** Describe the electron transport chain in detail. **10**

**OR**

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| a) Write about cyclic photophosphorylation.            | 2½ |
| b) Explain the chemiosmotic coupling hypothesis.       | 2½ |
| c) Explain production of alcohol by fermentation.      | 2½ |
| d) Describe substrate level phosphorylation reactions. | 2½ |

**5.** Answer **any ten** of the following (1 mark each).

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|---|---|
| a) What is generation time?                             | 1 |
| b) What is synchronous culture?                         | 1 |
| c) What are halophiles?                                 | 1 |
| d) What is Apoenzyme?                                   | 1 |
| e) Name any three classes of Enzyme?                    | 1 |
| f) What is allosteric site?                             | 1 |
| g) What is Anabolism?                                   | 1 |
| h) Give the location of TCA cycle in Cell.              | 1 |
| i) How many ATP is produced by one NADH molecule.       | 1 |
| j) What is the role of $F_0 - F_1$ ATPase               | 1 |
| k) What is Oxidative Phosphorylation?                   | 1 |
| l) Give the example of high energy phosphate compounds. | 1 |

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