Bachelor of Science (B.Sc.) (CBCS Pattern) Third Semester

USMBT05 -Microbiology : Paper-I (Microbial Physiology and Metabolism)

P. Pages : 2 **GUG/W/18/11614**

Time : Three Hours * 3 8 4 2 * Max. Marks : 50

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1. Describe different physical conditions required for growth. **10**

OR

a) Write a note on Bacterial growth curve. **2½**

b) Add a note on Binary Fission. **2½**

c) Explain Breed's method in brief for quantitative measurement of bacteria. **2½**

d) Describe working of Helmstetter cummings apparatus for synchronous culture. **2½**

2. Give details about nomenclature & classification of enzymes according to IUB system. **10**

OR

a) Describe various characteristics of enzyme. **2½**

b) Write a note on Koshland model for enzyme substrate interaction. **2½**

c) Explain competitive inhibition in brief. **2½**

d) How temperature affects enzyme activity. Explain. **2½**

3. What is catabolism? Explain in details about citric acid cycle (Kreb cycle). **10**

OR

a) Give outline of β-oxidation pathway. **2½**

b) What are Anaplerotic reactions give examples. **2½**

c) Give the outline of HMP pathway. **2½**

d) Write a note on urea cycle. **2½**

4. Define phosphorylation? Give details about cyclic & Non-cyclic photophosphorylation. **10**

OR

a) Write a note on substrate level phosphorylation. **2½**

b) Write a note on High energy compounds. **2½**

c) Write a note on Alcoholic fermentation. **2½**

d) Give general features of electron transport chain. **2½**

5. Solve **any ten.**

a) What is log phase? **1**

b) Define Generation time. **1**

c) What are microaerophiles? **1**

d) Define Activation energy. **1**

e) What is active site? **1**

f) Define Km. **1**

g) What is Amphibolism? **1**

h) What are cytochromes? **1**

i) Write the names of any two metabolic pathways starting with Glucose. **1**

j) What is photophosphorylation? **1**

k) Write the names of High energy compounds. **1**

l) How many ATP's are generated in Alcoholic fermentation? **1**

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