

B.Sc. Semester III (Honours) Examination, 2018-19

MICROBIOLOGY

Course ID : 32201

Course Code : SHMCB-301C-5(T)

Course Title : Microbial Physiology and Metabolism

Time: 1 Hour 15 Minutes

Full Marks: 25

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer all the questions.

1. Answer *any five* of the following: 1×5=5
 - (a) Give example of one iron oxidising bacteria.
 - (b) What is substrate level phosphorylation?
 - (c) What is plasmolysis?
 - (d) Name two microbial enzymes which protect the cell from the toxic oxygen.
 - (e) What do you mean by compatible solutes?
 - (f) Define synchronous culture.
 - (g) Name one hyperthermophiles.
 - (h) Name one bacterium perform ED pathway.

 2. Answer *any two* of the following: 5×2=10
 - (a) Differentiate between chemostat and turbidostat. What is synchronous culture. 3+2=5
 - (b) Discuss briefly about the microbial photosynthetic apparatus and pigments.
 - (c) Schematically draw the EMP pathway. What is the full form of EMP. 4+1=5
 - (d) Classify the micro-organism based on their O₂ (oxygen) requirement. Describe them with suitable example. 2+3=5

 3. Answer *any one* of the following: 10×1=10
 - (a) Write short notes on nitrogenase complex. How aerobic organisms protect nitrogenase from oxygen. What is the role of denitrifying bacteria in nitrogen cycle. 5+3+2=10
 - (b) Describe briefly about oxygenic photosynthesis, with suitable example and schematic diagram. Mention the difference from anoxygenic photosynthesis. 7+3=10
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