

B.Sc. 3rd Semester (Honours) Examination, 2019-20

MICROBIOLOGY

Course ID : 32211

Course Code : SH/MCB-301-C-5

Course Title: Microbial Physiology and Metabolism

Time: 1 Hour 15 Minutes

Full Marks: 25

*The figures in the right hand side 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) What is generation time?
 - (b) What is diauxic growth curve?
 - (c) What is microaerophilic bacteria? Give one example.
 - (d) What is meant by antiport?
 - (e) What is siderophore?
 - (f) What is dissimilatory nitrate reduction?
 - (g) What is methanogenesis? Give one example.
 - (h) Give one example each of oxygenic and anoxygenic photosynthetic bacteria.

 2. Answer *any two* of the following: 5×2=10
 - (a) With a diagram describe different phases of bacterial growth curve. What is meant by synchronous growth? 4+1=5
 - (b) What is the difference between passive and active transport? Describe the mechanism of facilitated diffusion. 2+3=5
 - (c) Describe the mechanism of homolactic fermentation. How it differs from heterolactic fermentation? 3+2=5
 - (d) Schematically describe photosynthetic carbon reduction cycle mentioning enzymes in each step.

 3. Answer *any one* of the following: 10×1=10
 - (a) Schematically represent and briefly narrate pentose phosphate pathway mentioning the enzymes involved in this pathway. What is the significance of this pathway? How it differs from EMP and ED pathway? 6+2+2=10
 - (b) Define chemolithotrophy. Classify aerobic chemolithotrophs into physiological groups with examples. Give an account of hydrogen oxidation by chemolithotrophic bacteria. 2+3+5=10
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