

B.Sc. Semester-III Examination, 2022-23**MICROBIOLOGY [Honours]**

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 margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*Answer **all** the questions.**UNIT-I**1. Answer any **five** of the following questions:

1×5=5

- Give one example of thermophilic bacteria.
- What is meant by facultative aerobe?
- Name one stem nodule forming bacteria.
- What is the importance of uptake hydrogenase?
- Give example of any one enzyme where Zn⁺ acts as cofactor.
- What is the significance of NADPH?
- Name one denitrifying bacteria.
- What is group translocation?

UNIT-II2. Answer any **two** of the following questions:

5×2=10

- What is Cardinal temperature? Classify bacteria on the basis of temperature requirement with example. 1+4=5
- Why would the routine culture of *Leuconostoc mesenteroides* be easier in a complex medium than in a chemically defined medium. Under what conditions lag phase doesn't occur? 2+3=5
- Write the amphibolic nature of TCA cycle. Name one TCA cycle enzyme found in mitochondrial matrix. 4+1=5
- Draw and describe bacterial growth curve. 5

UNIT-III3. Answer any **one** of the following questions:

10×1=10

- Describe with suitable sketches different types of photosynthetic apparatus found in bacteria. Schematically describe Calvin cycle mentioning enzymes involved in each step. 5+5=10
- Describe the EMP pathway of sugar degradation. What are the components of electron transport chain? 7+3=10