

Bankura University
B.Sc 3rd Semester (Honours) Theory Examination,2021
SUB: Microbiology

Course ID: 32211

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

Course Title: *Microbial Physiology and Metabolism*

Time: 1h 15 min

Full Marks: 25

The figures in the margin indicate full marks

Answer all the questions.

UNIT I

1. Answer any five of the following questions: (1X5=5)

- a) What is the significance of lag phase in bacterial growth?
- b) What is chemolithotroph?
- c) What is facilitated diffusion?
- d) What is secondary active transport?
- e) Why PPP pathway is significant?
- f) Name one denitrifying bacteria.
- g) What is Pasteur effect?
- h) What is symport?

UNIT II

2. Answer any two of the following questions: (5X2=10)

- a) Schematically describe the electron transport chain in bacteria.
- b) What is generation time? How can you express bacterial growth mathematically? $2 + 3=5$
- c) Describe the light reaction of purple sulfur bacteria. Which group of bacteria perform oxygenic photosynthesis? $4+1=5$
- d) How oxygen is toxic for both aerobes and anaerobes? Why aerobes can overcome that toxic effect but anaerobes can not.

UNIT III

3. Answer any one of the following questions: (10x1=10)

- a) Why TCA cycle is called an amphibolic pathway? Schematically illustrate the TCA cycle mentioning enzymes involve. $2+8=10$
- b) What is nitrate reduction? Describe the mechanism of nitrate reduction. $2+8=10$