

2125  
B.E. (Bio-Technology) Third Semester  
BIO-312: Microbiology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following briefly:-

- a) Give the germ theory of disease.
- b) Why are endospores formed? Name one genus which forms them.
- c) Differentiate between mutualism and commensalism, give examples.
- d) Give a few prominent characteristics of *Bacillus* and *Rhizobium*.
- e) Differentiate between non-sense and mis-sense mutation, give example. (5x2)

UNIT - I

- II. a) Enlist contributions of Louis Pasteur in the field of Microbiology.  
b) With the help of a diagram, explain lysogenic life cycle of a virus. (5,5)
- III. a) Describe the structure and function of a Gram-negative bacterial cell wall.  
b) Explain the nutritive requirements of bacteria. (5,5)
- IV. a) Explain the 4 stages of growth. How can growth be prevented using autoclave?  
b) Explain the importance and structure of a bacterial capsule. (5,5)

UNIT - II

- V. Illustrate how DNA can be transferred from one prokaryotic cell to another. (10)
- VI. Explain glycolysis in bacteria. (10)
- VII. a) Draw the complete sulphur cycle.  
b) Explain the molecular basis of bacterial classification. (5,5)

x-x-x