

2063  
M. E. (Bio-Technology)  
First Semester  
ME-BIO-103: Microbial Biotechnology

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 role of propionic acid in food industry.
  - b) Write the significance of GMP.
  - c) Give the advantages of biocontrol agents over chemical pesticides.
  - d) Name 2 beta lactam antibiotics.
  - e) Give the production strain and physiological conditions for bio-production of chitinase.
- (5x2)

**UNIT - I**

- II. Detail the microbial production of recombinant insulin. (10)
- III. Enlist the importance of peroxidases. Elaborate its various production parameters (10)
- IV. Describe the role and production of beta carotene in the food industry. (10)

**UNIT - II**

- V. What are different kinds of waste? How can they be managed? (10)
- VI. Explain the following:-
  - a) Adaptations of psychrophiles
  - b) Biogas production(2x5)
- VII. Give the role of biofertilizers in agriculture. Describe their types and benefits. (10)

x-x-x