

2054

B.E. (Biotechnology) Fourth Semester
BIO-414: Industrial Bio-Technology

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. Attempt the following:-

- a) Which crude media has some content of pentose sugar (1)
- b) Write the applications of proteases. (2)
- c) What are the names of organic nitrogen sources for media preparation (2)
- d) Write the microbial productions by Bacillus species (2)
- e) Write the name of an acid produced by fermentation method and its organism.(1)
- f) Write the Genus and species of an organism used for production of amylases. (1)
- g) Write the products obtained from *Saccharomyces cerevisiae*. (1)

UNIT - I

- II. Describe in detail the various methods for strain improvement. (10)
- III. a) Discuss the design and components of a fermenter.
b) Explain the role of each component (7,3)
- IV. a) Describe in detail the various components of an ideal growth medium.
b) Write the crude medias available. (7,3)

UNIT - II

- V. a) Describe in detail the microbial production process of Citric acid.
b) Write applications of citric acid. (7,3)
- VI. a) How many types of amylase activity may be present in a microbial culture?
b) Write the applications of proteases. (5,5)
- VII. Describe the various methods of immobilization of enzymes. What are the advantages and disadvantages of immobilization (10)

x-x-x