

FACULTY OF SCIENCE**M. Sc. IV – Semester Examination, May / June 2015****Subject : Microbiology****Paper – II : Microbial Biotechnology****Time : 3 Hours****Max. Marks: 80****Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.****PART – A (8 x 4 = 32 Marks)
(Short Answer Type)**

- 1 Maturation
- 2 Importance of carbonation in beer production
- 3 Composition of glutamic acid production medium
- 4 Importance of fermentation in citric acid production
- 5 Semisynthetic tetracyclines
- 6 Production medium for penicillin biosynthesis
- 7 Steps involved in downstream processing of microbial enzyme
- 8 Types of vaccines

**PART – B (4 x 12 = 48 Marks)
(Essay Answer Type)**

- 9 (a) Describe the role of raw materials in economic production of alcohol at industrial level.
OR
(b) What is the importance of fruit quality in wine making and the role of preservatives in storage of beer?
- 10 (a) Describe mechanism involved in microbial production of vitamin B12.
OR
(b) Write on the role of fermentation process parameters in improving the citric acid production.
- 11 (a) Explain the various steps involved in semi-synthetic penicillin production.
OR
(b) Describe downstream processing tetracyclines and their importance.
- 12 (a) Classify lipases and their importance in biofuel production.
OR
(b) Describe principles involved in vaccine production.
