



PT-003-1194004

Seat No. _____

**M. Sc. (Microbiology) (Sem. IV) (CBCS)
(W.E.F. 2016) Examination**

August - 2020

**Paper - 422 : Fermentation Technology - II
(Elective)**

Faculty Code : 003

Subject Code : 1194004

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1 Answer the following : (Any **Seven** out of Ten, each 14
of 02 marks)
- (1) Why are cells immobilized?
 - (2) What is the chemical disruption of microbial cells?
 - (3) What is a bead-beating?
 - (4) How are antibiotics produced by fermentation technology?
 - (5) What is differential distillation? Where is it used?
 - (6) What are various types of spargers?
 - (7) How would you differentiate industrial applications of chemical catalysts and biocatalysts?
 - (8) What is the filtration?
 - (9) How do amylases break down starch?
 - (10) How are enzymes produced by fermentation technology?
- 2 Answer the following : (Any **Two** out of three, each 14
07 marks)
- (a) Describe different techniques of microbial cell disintegration by chemical methods.
 - (b) How would you purify fermentation products?
 - (c) Write a note on upstream processes.

- 3** Answer the following : **14**
- (a) Write a note on types of molasses.
 - (b) Describe methods for the immobilization of microbial cells.

OR

- 3** Answer the following : **14**
- (a) Describe methods for the immobilization of microbial cells.
 - (b) Write a note on crude carbon sources useful for the fermentative production of ethanol.

- 4** Answer the following : **14**
- (a) Describe fermentative production of citric acid
 - (b) Write a note on the fermentative production of Vitamin B 12.

- 5** Answer the following : (Any **Two** out of four, each of 07 marks) **14**
- (a) Describe fermentative production of lysine
 - (b) Briefly describe various sources of enzymes.
 - (c) Describe the microbial production of pectinases.
 - (d) Write a note on industrial applications of enzymes.
