



BBC-003-1194004 Seat No. _____

M. Sc. (Microbiology) (Sem. IV) (CBCS) Examination

July – 2021

MICRO-422 : Fermentation Technology-II

(Elective)

Faculty Code : 003

Subject Code : 1194004

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

[Total Marks : 70

Instruction : Attempt any five questions out of 10 questions given below.

1 Answer the following : (Each of 02 marks) **14**

- (1) What is a batch fermentation process?
- (2) What is secondary screening?
- (3) Give name of various types of agitators.
- (4) Why are enzymes useful in industry?
- (5) How would you separate microbial cells?
- (6) How does pectinase break down pectin?
- (7) What is the major source of antibiotics?

2 Answer the following : (Each of 02 marks) **14**

- (1) Why are enzymes immobilized?
- (2) Name any two broad spectrum antibiotics.
- (3) What is mechanical disruption?
- (4) What is entrapment?
- (5) What is the aim of crystallization?
- (6) How is ethanol extracted?
- (7) What is bead beating?

- 3** Answer the following : (Each of 07 marks) **14**
- (a) Write a note on techniques of microbial cell disintegration by chemical methods.
 - (b) How would you extract and purify fermentation products?
- 4** Answer the following : (Each of 07 marks) **14**
- (a) Write a note on downstream processes
 - (b) How would you differentiate mechanical and chemical cell disintegration?
- 5** Answer the following : (Each of 07 marks) **14**
- (a) How would you produce biomass using molasses? Explain.
 - (b) Describe the process of fermentative production of ethanol.
- 6** Answer the following : (Each of 07 marks) **14**
- (a) Describe any two methods for immobilization of microbial cells.
 - (b) Describe any two methods for enzyme immobilization.
- 7** Answer the following : (Each of 07 marks) **14**
- (a) Explain various crude carbon sources
 - (b) Write a note on fermentative production of Vitamin B12
- 8** Answer the following : (Each of 07 marks) **14**
- (a) What is molasses? Describe its types.
 - (b) Describe fermentative production of Citric acid

- 9** Answer the following : (Each of 07 marks) **14**
- (a) Explain fermentative production of lysine
 - (b) Explain various crude nitrogen sources
- 10** Answer the following : (Each of 07 marks) **14**
- (a) Explain microbial production of proteases.
 - (b) Write a note on microbial production of Xanthan
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