



MBU-003-1194004 Seat No. _____

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

April / May - 2018

422 : Fermentation Technology - II (Ele.)

Faculty Code : 003

Subject Code : 1194004

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

[Total Marks : 70

1 Answer any **seven** of the following : (2 Marks each)

- (a) What is Hydrol?
- (b) List out the factors affecting the mass transfer of substrate in SCP production from alkanes.
- (c) What is ethanol tolerance for growth?
- (d) Highlight methods used for the amino acid production.
- (e) What is the difference between heterofermentative and homofermentative bacteria?
- (f) What is pernicious anemia?
- (g) What is cell entrapment?
- (h) Enlist industrial applications of proteases.
- (i) What are the advantages of using immobilized cell?
- (j) List out industrial applications of free enzymes.

2 Answer any **two** of the following : (7 Marks each)

- (a) Discuss separation, of different microbial cells.
- (b) Give a detailed account of extraction and purification of fermentation products.
- (c) Describe by-product, economic & energetic aspects of ethanol fermentation.

- 3** Answer the following : (7 Marks each)
- (a) Describe techniques, support materials and applications of the enzyme immobilization.
 - (b) Give an account of sugar, starch and cellulosic materials as a feed stock for industrial production of ethanol.
- OR**
- (a) Discuss molasses and spent sulphite liquor used as industrial substrates for biomass production.
 - (b) Describe regulation, biosynthesis and recovery of penicillin from the fermentation broth.
- 4** Answer the following : (7 Marks each)
- (a) Discuss biosynthesis of citric acid and briefly outline production process along with recovery of citric acid and its industrial applications.
 - (b) Describe glutamic acid fermentation with respect to organisms, biosynthesis, regulation and recovery process.
- 5** Write a note on any **two** of the following : (7 Marks each)
- (a) Microbial production of amylases.
 - (b) Microbial production of Xanthan.
 - (c) Biosynthesis, production process and recovery of L-lysine.
 - (d) Concepts, types, mode of operation and applications of crystallization and drying
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