

Total No. of Questions :4]

SEAT No. :

P703

[5315]-241

[Total No. of Pages :2

S.Y.B. Sc.

INDUSTRIAL MICROBIOLOGY (Vocational)

VOC- IND-MIC- 221: Fermentation Processes and Downstream Processing

(2013 Pattern) (Semester-II) (Paper - I)

Time : 2 Hours]

[Max. Marks :40

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *All questions carry equal marks.*
- 4) *Draw neat labeled diagrams wherever necessary.*
- 5) *Use of scientific calculators is allowed.*

Q1) Answer each sub-question in one or two lines; Fill in the blanks; State whether the statement is true or false. **[10]**

- a) Define Downstream Processing.
- b) The cell disruption is important step in isolation of extracellular enzyme.(True/False).
- c) Distillation can be used to separate a soluble solid from a solution.(True/False).
- d) Write structure of citric acid.
- e) Name any two microbes used as bioinoculant with respect to their plant growth promoting feature.
- f) The Production of L-glutamic acid by *C. glutamicum* is maximal at a critical ___ concentration, which is suboptimal for growth.
- g) State any two primary metabolites produced by microbes and obtained by fermentation process.
- h) Name any two chemicals which are used in precipitation of fermentation product.
- i) What is rennet?
- j) Disadvantages of extraction process.

P.T.O.

Q2) Answer any two of the following. **[10]**

- a) Write flow chart for glutamate production.
- b) Explain Vitamin B12 production.
- c) How Chromatography is used in product recovery?

Q3) Write short notes on any two of the following. **[10]**

- a) Vinegar production.
- b) Precipitation method in fermentation.
- c) Product polishing.

Q4) Answer any one of the following. **[10]**

- a) Discuss a typical process of bioinoculant production using flow chart. How is quality control employed in bioinoculant production?
- b) Describe the filtration as product recovery process in fermentation.

