

B.Sc. (Part-II) (CBCS Pattern) Semester-IV
USMBT07 - Microbiology Paper-I - Industrial Microbiology

P. Pages : 2

Time : Three Hours



GUG/W/24/12012(S)

Max. Marks : 50

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- Notes : 1. All questions are compulsory and carry marks as indicated.
2. Draw diagram wherever necessary.

1. What is fermentation? Describe Batch and continuous fermentation in detail. 10

OR

- a) Draw well labelled diagram of batch fermenter. **2½**
- b) Describe antifoaming agents with examples. **2½**
- c) What is industrial microbiology? Write the scope of industrial microbiology. **2½**
- d) Explain in brief classification of fermentation on the basis of number of organism used. **2½**

2. Describe in detail primary screening methods for isolation of industrially important microorganism. 10

OR

- a) Discuss the nitrogen source material used in fermentation media. **2½**
- b) Write note on Inoculum build-up of fermentation process. **2½**
- c) Discuss role of recombination process for strain improvement in industrial process. **2½**
- d) Enlist any five industrially important microorganisms and their products. **2½**

3. Describe in details the Physical, chemical and enzymatic methods of cell disruption involved in downstream fermentation process. 10

OR

- a) Discuss drying method in fermentation process. **2½**
- b) Describe ion-exchange chromatography method for the purification of products. **2½**
- c) Write a note on packaging and marketing of product. **2½**
- d) Discuss crystallization process in fermentation. **2½**

4. Describe in detail the industrial production and biochemistry of antibiotic 'penicillin'. 10

OR

- a) Write different types of wine. 2½
- b) compare compressed yeast with Active dry yeast. 2½
- c) Explain the L-lysine amino acid production in brief. 2½
- d) Describe recovery of citric acid. 2½

5. Solve **any ten** (each question carry one mark) 1x10

- i) What is Sparger?
- ii) What is submerge fermentation.
- iii) What is the role of baffles in fermenter?
- iv) Define Scale-up in fermentation?
- v) What are precursors.
- vi) What is sulphite waste liquor.
- vii) Write the name of salt used in protein product precipitation?
- viii) What is downstream processing?
- ix) What is anion exchanger?
- x) What is the percentage of alcohol in wine?
- xi) Give the name of organism used in citric acid production.
- xii) Write the name of strain used Analyse enzyme production.
