

B.Sc. (C.B.C.S. Pattern) Sem-IV
USMBT07 - Microbiology : Paper-I (Industrial Microbiology)

P. Pages : 2

Time : Three Hours



GUG/W/19/12012

Max. Marks : 50

Notes : 1. All questions are compulsory and carry equal marks.

1. Draw a well labelled diagram of typical batch fermenter. Explain different parts of fermenter. **10**

OR

- a) Compare batch fermentation with continuous fermentation. **2½**
- b) Write the applications of computer in fermentation process. **2½**
- c) Explain multiple culture fermentation method with example. **2½**
- d) Give characteristics of ideal fermenter. **2½**

2. Describe the various raw materials used in the fermentation process. **10**

OR

- a) Describe crowded plate techniques in primary screening of microorganisms. **2½**
- b) Write a note on Inoculum built up. **2½**
- c) Write the significance of secondary screening. **2½**
- d) Explain Auxanography technique for primary screening. **2½**

3. Describe various methods of cell mass removal in downstream process. **10**

OR

- a) Write about the different stages of upstream process in brief. **2½**
- b) Describe any two methods of purification of fermentation products. **2½**
- c) Write the applications of chromatography in the recovery of industrial products. **2½**
- d) Write the significance of quality testing of the end product in fermentation industry. **2½**

4. Describe industrial production of penicillin with flow sheet diagram add a note on semisynthetic penicillin. **10**

OR

- a) Write a note on Baker's yeast. 2½
- b) Describe the various types of Beer. 2½
- c) Explain production of fermented food Idli. 2½
- d) Write about the various uses of citric acid. 2½

5. Solve any ten.

- a) What is Bioreactor? 1
- b) What is Sparger? 1
- c) Name any two antifoaming agents. 1
- d) What is pharma media. 1
- e) What is scale up. 1
- f) Name any two industrially important Moulds. 1
- g) Name any two solvents used in recovery process. 1
- h) Define upstream process. 1
- i) Name the physical method used in cell disruption. 1
- j) What is maturation period in Bakers yeast production. 1
- k) Name the organism involved in citric acid production. 1
- l) Write the two uses of amino acid lysin. 1
