

M.Sc.- I (Biotechnology) CBCS Pattern Semester-II
PSBIT-108 - Paper-IV : Industrial Biotechnology

P. Pages : 1

Time : Three Hours



GUG/W/23/11194

Max. Marks : 80

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

1. What is fermentor? Describe various types of fermentor in detail. **16**
- OR**
- a) Explain general design of fermentor? **8**
- b) Write note on different types of fermentations. **8**
2. Describe general upstream process in detail? **16**
- OR**
- a) Write note on inoculum built up. **8**
- b) Write note on Antifoaming agents and types of microorganism in fermentation. **8**
3. Describe in detail. About various filtration techniques in downstream process. **16**
- OR**
- a) Explain various chromatographic techniques. **8**
- b) Write note on quality control testing – Antibiotics. **8**
4. Describe industrial production of penicillin in detail. **16**
- OR**
- a) Write note on Biosensor. **8**
- b) Write note on Immobilization of enzymes. **8**
5. i) Write general concept of fermentor. **4x4**
- ii) Explain yield coefficient.
- iii) What is reverse Osmosis?
- iv) What is Lyophilization?
