

M.Sc.(Microbiology) (CBCS Pattern) Semester - III  
**PSMBT-11 - Paper-III : Bioprocess Technology**

P. Pages : 1

Time : Three Hours



**GUG/S/23/11293**

Max. Marks : 80

---

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

1. Explain in detail batch & continuous fermentation? 16

**OR**

i) Discuss Growth Kinetics and monad models? 8

ii) Describe Kinetics of immobilized reactor? 8

2. Describe in detail ion exchange chromatography with their application? In down stream processes. 16

**OR**

i) Discuss bio-separation method of down stream processing? 8

ii) Describe in detail principle and application of centrifugation? 8

3. What is antibiotics? Describe in detail production of streptomycin? 16

**OR**

i) Describe in detail rDNA technology for ethanol production? 8

ii) Discuss dextrans as a biopolymers? 8

4. Describe in detail production of Vit – B<sub>12</sub>? 16

**OR**

i) Explain in detail solid state fermentation of Amylase production? 8

ii) Describe the production of lactic acid from why? 8

5. Write short note on:

i) Types of bioreactors? 4

ii) Explain Ultrafiltration? 4

iii) Explain steroid transformation? 4

iv) Discuss production of riboflavin? 4

\*\*\*\*\*