

M.Sc.(Microbiology) Third Semester (Old)  
**MB3-T011 - Paper-III : Bioprocess Technology (BT)**

P. Pages : 1

Time : Three Hours



**GUG/W/18/2298**

Max. Marks : 80

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

1. Explain the mode of conduct of continuous fermentation and types of it. 16

**OR**

Write notes on-

a) Discuss mass and heat transfer as process optimization. 8

b) Explain kinetics of immobilized reactors. 8

2. Explain in detail mechanism of concurrents and countercurrent extractors with suitable examples. 16

**OR**

a) Describe different types of filters used for bioseparation in downstream processing. 8

b) Explain process of drying and different techniques with suitable example. 8

3. Explain in detail r-DNA technology for ethanol production. 16

**OR**

a) Describe the industrial production of streptomycin with flowsheet diagram. 8

b) Explain the mechanism of steroid transformation. 8

4. Describe in detail Deep tank and solid state fermentation for amylase production. 16

**OR**

Write notes on-

a) Production and applications of Vinegar. 8

b) Production and applications of Riboflavin. 8

5. Write short notes on-

a) Fluidized bed reactors. 4

b) Pi relations. 4

c) Biopreservatives. 4

d) Applications of Glucose Oxidase. 4

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