

M.Sc.(Microbiology) (NEP Pattern) - Semester-III  
**STPG03MCB003 - Bioprocess Technology**

P. Pages : 1

Time : Three Hours



**GUG/W/24/16125**

Max. Marks : 80

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1. Describe the airlift, fedbatch and fluidized bed bioreactors. 16
- OR**
- a) Explain the batch and continuous fermentation. 8
- b) Write a note on process optimization of fermentation. 8
2. Explain the chromatographic techniques in downstream processing. 16
- OR**
- a) Write a note on basic principle of scale up working parameter. 8
- b) Describe the process of bioseparation of downstream process. 8
3. Describe the production of streptomycin and chloramphenicol antibiotics. 16
- OR**
- a) Describe r-DNA technology for ethanol production. 8
- b) Explain the biopreservatives in detail. 8
4. Describe the industrial production of lactic acid. 16
- OR**
- a) Describe the deep tank fermentation process of enzyme amylase. 8
- b) Write a short note on production of Gibberlins. 8
5. Describe the followings.
- a) Plug flow reactor. 4
- b) Drying technique and process with example. 4
- c) Ethanol production. 4
- d) Production of Carotenoid. 4

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