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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech. (Bio Tech.) (2018 Batch) (Sem.-1)
BIOPROCESS ENGINEERING & TECHNOLOGY

Subject Code : MTBT-103-18

Paper ID : [75764]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :**1. Attempt any FIVE questions out of EIGHT questions.****2. Each question carries TWELVE marks.**

1. What is batch, fed batch and continuous culture? Give a comparative account of growth kinetics of batch and continuous system.
2. What are fibrous filters? Describe the design of fibrous filters for sterilization of air. Also highlight the mechanism of retaining the microorganisms by fibrous filters.
3. What is fermentation kinetics? Describe its compartmental and unstructured models.
4. Discuss the factors influencing the aseptic aerobic fermentation process at industrial scale.
5. What are mechanical methods of cell disruption? Describe briefly cell disruption by bead mills and sonication. Also highlight merits and demerits in each case.
6. What is membrane based purification? Describe ultrafiltration, reverse osmosis and dialysis with merits and demerits in each case.
7. Describe the principle, procedure and applications of HPLC.
8. What is PID control? Describe direct regulatory control and advanced regulatory control in bioreactors with suitable diagrams.