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Total No. of Questions : 09

B.Tech.(Biotechnology) (Sem.-6)

FUNDAMENTALS OF BIOCHEMICAL ENGINEERING

Subject Code : BTBT-601

M.Code : 71072

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

1. Discuss briefly :

- a) Oxygen uptake rate
- b) Thermal death kinetics
- c) Turbidostat
- d) Repeated fed batch system
- e) Spiral heat exchangers
- f) Bioreactor
- g) Scale-up of processes
- h) Process variables
- i) Stirred tank reactor
- j) Aerobic cultures

SECTION-B

2. Discuss the mass and energy balance in biological processes.
3. What do you understand from unstructured batch growth models? Explain.
4. Describe the continuous cultivation in turbidostat and chemostat.
5. Describe the in-line controls used for measurements of process variables in bioreactors.
6. Describe the scale-up principles and difficulties in bioprocesses.

SECTION-C

7. Describe the various types of aeration and agitation systems used in bioreactors.
8. Describe the theory and design of depth filters used for sterilization of air in bioreactors.
9. What is oxygen uptake rate? Describe the oxygen consumption and heat evolution in aerobic cultures.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.