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**BTS 453**

**Second Semester M.Sc. Degree Examination, September/October 2022**  
**BIOTECHNOLOGY**  
**Bioprocess Technology**

Time : 3 Hours

Max. Marks : 70

**PART – A**

1. Write short notes on **any ten** of the following (**not exceeding 1 page each**) :  
**(10×2=20)**

- a) Fermentation media
- b) Aeration
- c) Tower fermenter
- d) Immobilization
- e) Batch fermentation
- f) Photobioreactors
- g) Filtration
- h) Bowl centrifugation
- i) Chromatography
- j) Reverse osmosis
- k) Biosensors
- l) Freeze drying.

**PART – B**

Write explanatory notes on **any five** of the following (**not exceeding 3 pages**) :  
**(5×6=30)**

2. Chemical process
3. Encapsulation
4. Computer in bioprocess

**P.T.O.**



5. Fermentation economics
6. Agitation pressure
7. Cell lysis methods
8. Crystallization.

PART – C

Write long answers on **any two** of the following (**not** exceeding **7** pages) : **(2×10=20)**

9. Explain the isolation and improvement of industrially important strains with examples.
  10. Discuss on types of fermenters and their applications with diagram.
  11. Give an account of Kinetics of fermentation process. Add a note on batch fermentation.
  12. Explain in detail the downstream processing of biomolecules.
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