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M. Tech. (Biotechnology)

SECOND SEMESTER EXAMINATION, 2009-10

DOWNSTREAM PROCESSING

Time.: 3 Hours

Total Marks : 100

- Note : (i) Attempt any FIVE questions.
(ii) Marks are indicated against each question.

1. Write short notes on the following : 5 x 4 = 20
 - (a) Adsorption
 - (b) Foam based Separation
 - (c) Role of microbes in trickling filters
 - (d) Gel filtration chromatography

2.
 - (a) Discuss the mechanisms involved in the adsorption. 10
 - (b) Write brief note on zone settling and its application in the treatment of wastewater. 10

3.
 - (a) Discuss the importance of upstream and downstream processing. 10
 - (b) Explain in detail about the methods involved in extracellular and intracellular product recovery. 10

4. Differentiate between : 5 x 4 = 20
 - (a) Dialysis and osmosis
 - (b) Discreet settling and Flocculent Settling

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- (c) Micro filtration and Ultra filtration
- (d) Adsorption and Absorption

5. (a) Compare the aerobic and anaerobic treatment of wastewater. Explain about Up-flow Anaerobic Sludge Blanket Reactor. 10
- (b) Derive an expression for flux under concentration polarization for a total retention membrane. 10

6. (a) Write short notes on the following : 5 x 2 = 10
- (i) Isoelectrofocussing
 - (ii) Drying
- (b) Explain about the gel electrophoresis for the separation of biomolecules. 10

7. Give brief note on the following : 10 x 2 = 20
- (a) Super Liquid extraction
 - (b) High Throughput Screening.
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