

Total number of printed pages – 3 **B. Tech**
CPBT 8306

Sixth Semester Examination – 2008

**UNIT OPERATION II AND DOWN STREAM
PROCESSING**

Full Marks – 70

Time : 3 Hours



*Answer Question No. 1 which is compulsory
and any **five** from the rest.*

*The figures in the right-hand margin
indicate marks.*

1. Answer the following questions : 2 × 10
- (a) What is mass transfer ?
 - (b) Define cross flow filtration.
 - (c) Mention the basic equation of the principles of centrifugation.
 - (d) What is meant by solvent extraction ?

- (e) Differentiate between the horizontal and vertical PAGE separation.
- (f) What are affinity labels in chromatography ?
- (g) What is Reynolds number ?
- (h) Define batch drying.
- (i) What is flocculation ?
- (j) Name two ion exchange resins used in separation processes.

2. Explain the characteristics of the separation of enzymes during down stream processing. 10

3. What is molecular exclusion chromatography ? Why it is important in purification of culture based products ? 10

4. Write notes on : 5 × 2
- (a) Broth conditioning
 - (b) Protein stability during separation process

P.T.O.

CPBT 8306

2

Contd.

5. Discuss the process of chromatographic separation of proteins based on molecular size and charges. 10
6. Write notes on : 5×2
- (a) Salt precipitation
 - (b) Membrane based filters.
7. Describe the principles, types and application of ultracentrifugation in down stream processing. 10
8. Write notes on : 5×2
- (a) Reverse osmosis
 - (b) Spray drying technique
