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Total number of printed pages – 2

B. Tech  
PCBT 4306 (New)

**Sixth Semester (Back) Examination – 2013**

**DOWNSTREAM PROCESS ENGINEERING**

**BRANCH : BIOTECH**

**QUESTION CODE : B250**

**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 affinity precipitation ?
  - (b) What is iso-electric point ?
  - (c) What is RCF ?
  - (d) Differentiate between absorption and adsorption.
  - (e) Write the role of semipermeable membranes.
  - (f) How electrodialysis is different from dialysis ?
  - (g) Write the principle behind ion exchange chromatography.
  - (h) Write the principle behind liquid electrophoresis.
  - (i) Write the principle behind reverse phase chromatography.
  - (j) Give examples of two enzymes used for cell disruption.



P.T.O.

2. Explain in details about the various types of cell disruption methods with suitable examples. 10
3. Write in details about the principle, instrumentation and applications of HPLC in details. 10
4. Write the principle of crystallization. Add a note on the various equipments used for crystallization. 10
5. Explain the following : 5×2
- (a) Microfiltration
  - (b) Ultrafiltration
6. Explain the principle of drying. Write a short note on the different types of drying equipments. Give details about Spray dryer. 3+3+4
7. Write short notes on : 5×2
- (a) Gel permeation chromatography
  - (b) Affinity chromatography.
8. Answer any **two** of the following : 5×2
- (a) Aqueous two-phase extraction
  - (b) Electro-dialysis
  - (c) Dialysis.

