(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2679 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. VII) ODD SEMESTER THEORY EXAMINATION 2013-14

DOWNSTREAM PROCESSING

Time : 3 Hours *Total Marks : 100*

Note :–Attempt all questions.

1. Attempt any **four** parts of the following : **(5×4=20)**
   (a) What are the various unit operations involved in Downstream Processing ?
   (b) What are High Value, Low Volume and High Purity Products ?
   (c) Explain the operation of HPLC.
   (d) Explain the membranes based purification systems.
   (e) Differentiate between coagulation and flocculation.
   (f) Define IMAC.
2. Discuss the role of any **four** in PAGE : **(5×4=20)**
   (a) APS
   (b) Riboflavin
   (c) Mercaptoethanol
   (d) SDS
   (e) TEMED
   (f) CBBR.

3. Attempt any **two** parts of the following : **(10×2=20)**

(a) What is Fusion Protein ? Discuss any one strategy to purify a recombinant protein.

(b) Write a detailed account on Chemical and Mechanical Methods of cell disruption.

(c) Explain about the Electrophoresis of Protein.

4. Attempt any **two** parts of the following : **(10×2=20)**

(a) Discuss Post Fermentation Treatment of Broth.

(b) Discuss the mechanism of Ammonium Sulphate Precipitation. Why Ammonium Sulphate is preferred for protein precipitation ?

(c) Discuss briefly about different types of Drying Equipment.

5. Attempt any **two** parts of the following : **(10×2=20)**

(a) Discuss the working principle of rotary drum vaccum filter with suitable diagram.

(b) A 30 ml sample of broth from penicillin fermentation is filtered in the laboratory on a 3 cm^2 filter at a pressure drop of 5 psi. The filtration time is 4.5 minutes. The compressibility of *Penicillium chrysogenum* filter cake is 0.5. If 500 litres of fermentation broth from a pilot plant have to be filtered in 1 hour, calculate the size of filter required for a pressure drop of 10 psi and 5 psi. Neglect the resistance of the filter medium.

(c) Write short notes on :

(i) Solvent recovery

(ii) Two phase aqueous extraction.