

Code No: 07A72304

R07**Set No. 2**

IV B.Tech I Semester Examinations, MAY 2011

DOWNSTREAM PROCESSING

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss the advantage and disadvantage of foam based separation in the recovery of products in biotech Industry. [16]
2. Discuss the steps involved in the product isolation and purification of canamycin production. [16]
3. (a) Write the principle of Gel chromatography.
(b) What is the retention volume (V_R) if external solution (V_0) is 16ml and internal solution is 5 ml and fraction of (V_i) acceptable to solute is 12ml in a gel chromatography column? [16]
4. Discuss about the classical and modern biotechnology consideration of downstream processing in Biotech industry. [16]
5. (a) How does the compressibility of the cake alter the filtration characteristics of the broth
(b) Write a note on the necessity of pretreatment of fermentation broths and the methods available for pretreatment. [16]
6. (a) Write the principle and mechanism of precipitation of proteins by selective thermal denaturation.
(b) What are the required precautions during the process for different biotechnological products? [16]
7. (a) Explain the various components of a typical membrane separation plant with help of suitable diagram.
(b) What are the criteria has to follow for design of membrane modules? Discuss about the different membrane modules. [16]
8. Write about eletro osmotic flow and pressure induced flow in capillary electrophoresis. [16]

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Set No. 4

IV B.Tech I Semester Examinations, MAY 2011

DOWNSTREAM PROCESSING

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Write about different types of Stationary phases available for Gas chromatography.
(b) What is the percentage composition of the mixture of Ethane, Propane, butane if in Gas chromatography separation the peak areas were 53.2, 14.5 and 31 cm. [16]
2. What are the various unit operations for the separation of suspended solids? [16]
3. Write about the process advantages and industrial applications of integrated bio-processing. [16]
4. Discuss about the applications of membrane separation process in Biotech industry. [16]
5. What is filtration? With a neat sketch explain the working of a rotary drum filter. What is a pre coat filter? [16]
6. Discuss the steps involved in the product isolation and purification of an extra cellular enzyme. [16]
7. Write the principle of pervaporation, its operation and the need for selection of the process. Write about its advantage and disadvantage in its industrial application. [16]
8. Write about various types of preparative gel electrophoresis techniques and their applications. [16]

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R07

Set No. 1

IV B.Tech I Semester Examinations, MAY 2011

DOWNSTREAM PROCESSING

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss the different model for describing the flow characteristics of fermentation broths. [16]
2. Explain the principle, types of crystallization and its significance in product recovery. [16]
3. What are different cell disintegration methods? Explain any one method with a neat diagram. [16]
4. Write about Bioaffinity chromatography and how to reduce non specific interactions in affinity chromatography. [16]
5. Discuss about the single -stage membrane separation with ideal mixing. [16]
6. Describe about different agents employed in precipitation and the principle which renders them insoluble. Make a brief note on the industrial application of each method. [16]
7. Outline the downstream processing steps in glutamic acid manufacture. [16]
8. (a) What are the special precautions and problems encountered during the electrophoretic run of big slab gels?
(b) Effect of salt contaminants in IEF run. [16]

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R07**Set No. 3**

IV B.Tech I Semester Examinations, MAY 2011

DOWNSTREAM PROCESSING

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on
 - (a) Thermal denaturation of proteins
 - (b) Criteria to select salt concentration for salting out
 - (c) Lyotropic series. [5+7+4]
2. Write the principle of crystallization. Write the types of crystallization commonly employed in the industry. [16]
3.
 - (a) What are the advantages of membrane separation process?
 - (b) What is Ultra filtration? How is it useful in bio separation? [16]
4. Explain about paper chromatography. Write its advantages and disadvantages in process. Is the process suitable in product recovery? Justify your answer. [16]
5. What are the stages involved in the recovery of intra cellular enzymes? Explain with help of suitable unit operation involved in each stage. [16]
6. Write the difference in principle and method of native gel and denatured gel electrophoresis. [16]
7. Describe various types of filtration and write the basic principle lying in it. [16]
8. Outline the downstream processing steps in gluconic acid manufacture. [16]
