

Printed Pages: 02

Subject Code: NBT701

Paper Id:

154701

Roll No:

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BTECH
(SEM VII) THEORY EXAMINATION 2018-19
BIOSEPRATION AND DOWN STREAM PROCESSING

Time: 3 Hours

Total Marks:100

Notes: Assume any Missing Data.

SECTION A

1. Attempt **all** parts. Each part carries equal marks : **(2X10=20)**
- a. Write down the freundlich equation. Give the principle of sedimentation.
 - b. Write down the basic steps of bioseparation process with suitable examples.
 - c. What is the product polishing and organic solvent? Define it with example.
 - d. What is isolation with suitable example?
 - e. Discuss the role of subtilisin and dextran as biomolecule.
 - f. Discuss about the biomass. Write down the name of debris separation technique with suitable examples.
 - g. Give the principle of electrophoretic separation.
 - h. What do you understand by the term of freeze dryer?
 - i. Give the basic explanation about the hybrid separation technologies.
 - j. What is the precipitation? Define with suitable example.

SECTION B

2. **Note:** Attempt **any three** question from this section **(10x3=30)**
- a. Write down the properties of biomolecules and explain the spray dryer with neat and labeled diagram.
 - b. Explain in membrane based purification and what is the principle of nucleation crystal with suitable example.
 - c. Write in detail about the gel permeation chromatography also discuss its application. Differentiate between the ultrafiltration and microfiltration.
 - d. Briefly discuss about the batch and continuous aqueous two phase extraction in details with suitable examples.
 - e. Write down the principle and working of HPLC. Also discuss its application.

SECTION- C

3. Attempt **any one** part of the following: **(10x1=10)**
- a. Give the principle of electrophoresis and briefly discuss about the isoelectric focusing-2D gel electrophoresis.
 - b. Explain the affinity chromatography in detail.

4. Attempt **any one** part of the following: **(10x1=10)**

- a. Enumeration of the various methods of cell disruption. Explain the various chemical methods, giving the role of each component.
- b. What is Bioseparation? Discuss filtration with its various aspects.

5. Attempt **any one** part of the following: **(10x1=10)**

- a. Explain different ways of protein precipitation? Give examples.
- b. Explain drying as a unit operation in downstream processing. Explain various drying equipments with the help of labeled diagrams.

6. Attempt **any one** part of the following: **(10x1=10)**

- a. What is affinity chromatography? Explain in detail.
- b. Briefly discuss about the supercritical extraction in detail.

7. Attempt **any one** part of the following: **(10x1=10)**

- a. Write short note on flocculation, product polishing, ethanol and monoclonal antibody.
- b. Describe the brief operation involved for the isolation and purification of ethanol. Discuss the importance of ethanol.

