PAPER ID-310034

Subject Code: NBT701

Roll No: | | | | | | | | | | | | | |

B.TECH

(SEM VII) THEORY EXAMINATION 2020-21

BIOSEPRATIONS AND DOWNSTREAM PROCESSING

Time: 3 Hours *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt **all** parts. Each part carries equal marks : **(2X10=20)**

a) Define Biomolecules. Give examples.
b) What is flocculation? Give examples.
c) Write down the basic principle of Adsorption.
d) Write down the name of cell- disruption methods and define solvent recovery.
e) What is the Bioseparation? Wright down the name of different methods for recovery of biomolecule.
f) Give the principle of hydrophobic interaction of chromatography.
g) What is isoelectric focusing?
h) What do you understand by hepatitis B vaccine?
i) What do you understand by the term of erythropoietin?
j) Differentiate between rotary dryer and freeze dryer.

SECTION B

2. Note: Attempt any three question from this section (10x3=30)

a) Explain bioproduct purification and write down the properties of biomolecules.
b) What do you mean by 2D gel electrophoresis? Explain the capital and operating cost analysis**.**
c) What is the Adsorption isotherm? Explain different adsorption processes used in industry.
d) Briefly discuss the various centrifugation methods used in industry.
e) Describe the principle and application of Gas chromatography in detail.
f) What is the principle of ultra filtration? Explain the theory of ultra filtration with neat labeled diagram.

SECTION- C

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

a. Discuss the steps involved in penicillin production recovery and purification.
b. Describe the mechanism of Ammonium sulphate precipitation method. Briefly discuss the various steps of growth kinetics.

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

a. Discuss the steps involved citric acid recovery and purification.
b. What is the principle of crystallization? Explain the different type of nucleation processes.

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

a. Describe the supercritical extraction in details with some limitations. Write short note on scale-up.
b. Briefly discuss the various cell disruption methods used in industry.

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

a. Describe liquid- liquid extraction process. What is the affinity chromatography?
b. Explain in membrane based purification. Write short notes on intracellular products.

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

a. Discuss the commercial importance of insulin and chymosin in detail.
b. Explain RIPP scheme. Write short note on product polishing and cost cutting strategy in downstream processing.