Sub Code:EBT701

Paper Id: 154711 Roll No:

B. TECH
(SEM-VII) THEORY EXAMINATION 2019-20
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* questions in brief. 2 x10 = 20

a. Describe the Osmotic shock.
b. What is ultrasonication?
c. Describe the solvent property modification during protein separation method.
d. What is fermentation process? Give an example for anaerobic process.
e. What is downstream process?
f. What is bioseparation?
g. Describe the Cation exchanger.
h. Give the commercial importance of Penicillin.
i. Why cooling process is important during fermentation process?
j. What is scale down?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. What are the characteristic of bioseparation? Give outline the major unit operations involved in DSP.
b. What is precepitation? Explain organic solvent precipitation.
c. Write the principle, instrumentation, working and application of HPLC.
d. What is Crystallization? Explain the primary and secondary nucleation.
e. Explain the physical, chemical and biological method for cell disruption of intracellular products.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is bioseperation? Give overviews of bioseparation in fementation industry.
(b) What is RIPP? Give the problem and requirements for bioproduct purification.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the High pressure homogenizer.
(b) Differentiate flocculation and sedimentation.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is adsorption? Explain Ultrafiltration.
(b) What is Extraction? Explain analytical and graphical method for batch extraction process.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is chromatography? Explain Affinity chromatography.
(b) Explain Iso-electric focusing.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is drying? Give the mechanism of drying.
(b) What is freeze drying? Explain in detail.