Paper Code: BT31A	**Roll No.**									

M.Tech.
(SEM III) ODD SEMESTER EXAMINATION 2015-2016
BIOSEPARATION AND DOWN STREAM PROCESSING

[Time: 3 hrs.] **[Max. Marks: 100]**

Note: ***Attempt All questions. All questions carry equal Marks.***

1. *Attempt any **TWO** questions of the following* **[2x10]**

(a) Explain the basic principle of Drying.

(b) Discuss the principle and various methods of crystalisation.

(c) Calculate the molar absorptivity of solution containing $5x10^{-5}$ M of a substance if percentage of transmittance (%T) in a 2 cm cell at 400 nm is 56%.

2. *Attempt any **TWO** questions of the following* **[2x10]**

(a) Give an account of analytical gel electrophoretic techniques and their applications.

(b) Explain the terms retention time, retention volume, resolution, plate height and number of theoretical plate.

(c) Define the principle of lyophilisation and also gives its advantages.

3. *Attempt any **TWO** questions of the following* **[2x10]**

(a) Explain the principle of centrifugal separation. Write notes on the operation of tubular bowl centrifuge and disc stack centrifuge**.**

(b) A suspension of spherical particles of 0.4 mm diameter was allowed to settle in a column of 100 cm length. The density difference between the solid particles and the liquid was 0.2 g/cm^3 **a**nd the viscosity of the liquid was 4.4 cP**.** Calculate the settling time of the particles assuming that the particles reached their terminal velocity almost instantly.

(c) How separation of DNA is different from Protein separation through gel- electrophoresis.

4. *Attempt any **TWO** questions of the following* **[2x10]**

(a) Define the physical and chemical methods of cell disruption.

(b) Discuss the various methods of membrane filtration.

(c) What are the applications of downstream processing in the modern Biotechnology?

5. *Write short notes on any **FOUR**.* **[4x5]**

(a) Supersaturation

(b) Isoelectric Focusing

(c) VAN Deemter Equation

(d) Recrystalisation

(e) Ultrafilteration

(f) Column Chromatography