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**Presidency University**

**Bengaluru**

**Ph.D. Course Work End Term Examinations – JAN-FEB 2025**

**Semester**:

**Course Code**: CHE815

**Course Name**: BIOTECHNOLOGY

**School**: SOE

**Date**: 31-01-2025

**Time**: 9.30 AM TO 12.30 PM

**Max Marks**: 100

**Weightage**: 50%

 **Instructions:**

1. *Read the question properly and answer accordingly*
2. *Question paper consists of 3 parts*
3. *Scientific and non-programmable calculators are permitted*

**Part A**

 **Answer ALL the Questions. Each question carries 6 marks. (5Q x 6M = 30M)**

1. Describe Batch Fermentation Process.
2. Define and Discuss about biotransformation.
3. Discuss a. WTO b. TRIPS c. GATT
4. What is strain improvement? Discuss the same in detail.
5. Discuss downstream processing in biotechnology.

**Part B**

**Answer ALL Questions. Each question carries 10 marks. (4Q x 10M = 40M)**

1. Write a note on Recombinant protein.
2. Differentiate the surface and submerged fermentation.
3. Differentiate between Spray drying and Lyophilization.
4. Write a short note on Biotransformation of antibiotics, steroids and their applications.

**Part C**

**Answer ALL Questions. Each question carries 15 marks. (2Q x 15M = 30M)**

1. List out the different immobilization methods. Discuss advantages and industrial applications of immobilization of enzymes and whole cells.
2. Describe in detail about Bioreactor- definition, Design, Principle, Parts, types, Applications and Limitations