# PG Even Semester Exam, May 2025

## Biotechnology

4th Semester

COURSE NO. BTYCC – 403

**[ Industrial Biotechnology, Molecular Immunology & Immunotechnology ]**

Full Marks : 70
Pass Marks : 28

Time : 3 hours

*The figures in the margin indicate full marks for the questions*

*Answer five questions, taking one from each Unit*

## UNIT-I

1. a. Write a brief note on: 3.5x2=7
   a. Enzyme immobilization
   b. Downstream processing
   b. Chalk out the pathways of industrial production of ethanol and lactic acid. 3.5x2=7
2. a. Write a brief account on the application of enzymes in the industrial production of food and therapeutics. 7

b. Write a note on the microbial production of antibiotics. 7

3. Write short notes on: 7x2=14

a. Characteristics of industrial effluents

b. Bioremediation

4. Write notes on: 7x2=14

a. Conversion of wastes to energy

b. Role of GMOs in improving the environment

## UNIT-III

5. a. Justify the statement, "B-cell development gets several opportunities". 8

b. What is allelic exclusion and molecular mimicry. 6

6. Writes notes on: 3.5x4=14

a. Pre-B cell

b. Src kinases

c. Hypersensitivity

d. Receptor editing

## UNIT-IV

7. Write an account on the use of transgenic animals in biotechnology. 14

8. Discuss the steps of vaccine development. Differentiate between traditional and reverse vaccinology. 7x2=14

## UNIT-V

9. Write a brief note on production of DNA vaccines. 14

10. Give an account on the manufacturing of immunodiagnostic kits. 14

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