

**M.Sc. IV SEMESTER [MAIN/ATKT] EXAMINATION
JUNE - JULY 2024**

BIOTECHNOLOGY

**Paper - I
[Bioprocess Technology]**

[Max. Marks : 75]

[Time : 3:00 Hrs.]

[Min. Marks : 26]

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt five questions. Each question carries an internal choice.
Each question carries **15 marks**.

Q. 1 What is Strain Improvement ? Explain strain improvement techniques ?

OR

Describe isolation and screening of industrial important microorganism ?

Q. 2 Write note on following -

- i) Media Formulation.
- ii) Sterilization.

OR

Explain centrifugation and ion exchange chromatography for recovery of product ?

Q. 3 Write an essay on different types of Bioreactor ?

OR

Explain measurement and control of Bioprocess parameters ?

Q. 4 Explain industrial production of ethanol with diagram ?

OR

Describe in detail microbial production of Penicillin ?

Q. 5 What is Immobilization ? Explain types of immobilization of enzyme with application ?

OR

Write note on following (**any two**) -

- i) Bio-fertilizers.
- ii) Oil Recovery.
- iii) Bio-Insecticides.