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25-BT-42

**M.Sc. IV SEMESTER [MAIN/ATKT] EXAMINATION
MAY - JUNE 2025**

BIOTECHNOLOGY

Paper - II

[Animal Biotechnology]

[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 all five questions. Each question carries an internal choice.
Each question carries **15 marks**.

- Q. 1** Describe the composition of cell culture media and explain the role of its constituents in supporting cell growth and maintenance.

OR

Discuss the advantages of using Serum – Free and Protein – Free defined Media in animal cell culture.

- Q. 2** Compare and contrast primary cell cultures and established cell lines regarding their advantages, limitations and typical applications.

OR

Describe the fundamental technique involved in the in vitro culture of mammalian cells, including preparation of culture media, aseptic technique, and method for maintaining cell lines.

- Q. 3** Explain the scaling up of animal cell culture for large scale production and discuss the design and types of bioreactors used in this process.

OR

Define cell transformation and discuss the various methods used to transform animal cells.

- Q. 4** What are the key changes during apoptosis, and why is its regulation crucial for health and disease ?

OR

Discuss the principles and applications of three – dimensional (3D) cell culture systems. How do these systems better mimic in – vivo conditions compared to traditional monolayer cultures ?

P.T.O.

Q. 5 Describe the major applications of animal cell culture in Biotechnology.

OR

Write short note on –

- i) Transgenic animals.
- ii) Stem cell culture.

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