



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE

(AUTONOMOUS) (Grant-in-Aid)

Affiliated to Sardar Patel University

VALLABH VIDYANAGAR-388120



Master of Science (Semester- 3) External Examination – 2025

PS03MAZOO01: ANIMAL BIOTECHNOLOGY & IMMUNOLOGY

Date: 06-10-2025 MONDAY

Time: 02:00 PM to 04:30 PM

Total marks: 50

Que 1: Multiple choice questions.

[10 M]

1. **Contamination in animal cell culture can be controlled by:**
A) Distilled water
B) Carbon dioxide
C) Antibiotics
D) Hormones
2. **Which property is most crucial for serum-free culture media?**
A) Defined growth factors and hormones
B) High protein concentration
C) Presence of antibiotics
D) Undefined supplements
3. **Subculturing of cell lines is primarily carried out to:**
A) Prevent nutrient depletion and overgrowth
B) Induce apoptosis
C) Increase genetic stability
D) Eliminate contamination
4. **Which event signals that cultured cells have undergone transformation?**
A) Loss of contact inhibition
B) Finite lifespan
C) Normal morphology
D) Reduced growth rate
5. **Which cloning technique allows single-cell origin of colonies?**
A) Limiting dilution method
B) Somatic cell transfer
C) Serial passage
D) Pronuclear injection
6. **Transgenic mice are most commonly used for:**
A) Functional gene analysis in vivo
B) Autoclave testing
C) Large-scale antibody production
D) Tissue culture contamination studies
7. **Negative selection in thymus eliminates:**
A) T-cells with high affinity for self-antigens
B) NK cells with low cytotoxicity
C) B-cells producing IgM
D) T-cells with low affinity for MHC
8. **The main principle of ELISA is:**
A) Enzyme-labelled antibody detecting antigen-antibody complexes
B) Radioisotope-labelled ligand binding
C) Gel precipitation of proteins
D) Electrophoretic separation
9. **Which signalling pathway plays a role in programmed cell death?**
A) FAS-FASL
B) GPCR
C) JAK-STAT
D) MAP kinase
10. **Complement activation via classical pathway is triggered mainly by:**
A) Antigen-antibody complexes
B) MHC molecules
C) Pathogen surface sugars
D) Cytokine signalling



- Q-2A. Compare natural media and synthetic media for cell culture. (6M)
Q-2B. Write short note on Bacteria. (4M)
OR
Q-2A. Explain contamination risks in cell culture. (6M)
Q-2B. Discuss any two-sterilization instrument. (4M)
- Q-3A. Write short note on transgenesis on Dolly sheep. (6M)
Q-3B. Write note on cell cloning. (4M)
OR
Q-3A. Differentiate between primary culture and stem cell culture. (6M)
Q-3B. Write short note on Apoptosis. (4M)
- Q-4A. Explain the mechanism of T-cell activation. (6M)
Q-4B. Write note on Types of ELISA. (4M)
OR
Q-4A. Explain VDJ recombination. (6M)
Q-4B. Write note on RIA. (4M)
- Q-5A. Describe cytokine receptors and their role in immunity. (6M)
Q-5B. Explain JAK-STAT pathway. (4M)
OR
Q-5A. Explain GPCR signalling. (6M)
Q-5B. Write short note on classical pathways. (4M)