



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) Internal Examination - 2025
PS03MAZOO01 : ANIMAL BIOTECHNOLOGY & IMMUNOLOGY

Date: 22/09/25

Time: 10:45 to 12:15

Total marks :30

Q-1 Multiple choice Questions

(6Marks)

1. **Prokaryotic cells differ from eukaryotic cells in that they lack:**
A) DNA
B) Plasma membrane
C) Membrane-bound organelles
D) Ribosomes
2. **Bacteriophages are viruses that specifically infect:**
A) Animals
B) Plants
C) Bacteria
D) Fungi
3. **Dolly the sheep was created by:**
A) Embryo splitting
B) Somatic cell nuclear transfer
C) Artificial insemination
D) Pronuclear injection
4. **The main role of T-helper (TH) cells is:**
A) Direct killing of infected cells
B) Activation of B-cells and macrophages
C) Production of antibodies
D) Recognition of self-antigens
5. **The process of VDJ recombination provides:**
A) Somatic hypermutation
B) Diversity of antigen receptors
C) Clonal deletion
D) Complement activation
6. **The JAK-STAT pathway is primarily activated by:**
A) Cytokines
B) Steroid hormones
C) Growth factors only
D) Bacterial toxins



Q-2 Differentiate between natural media and synthetic media used in animal cell culture with suitable examples. (6Marks)

OR

Q-2 Explain the importance of aseptic conditions in animal cell culture and describe any one facility required to maintain sterility. (6Marks)

Q-3 Differentiate between primary cell culture and secondary cell culture. (6Marks)

OR

Q-3 Describe the process of creating Dolly, the cloned sheep, using somatic cell nuclear transfer. (6Marks)

Q-4 How do developing T-cells in the thymus undergo receptor rearrangement, positive selection, and negative selection before maturing? (6Marks)

OR

Q-4 How does the various ELISA technique detect antigen–antibody interactions? (6Marks)

Q-5 How do the classical, alternative, and lectin pathways differ in complement activation and immune defense? (6Marks)

OR

Q-5 How do JAK-STAT pathway contribute to immune cell signaling and regulation? (6Marks)

No of printed pages: 01

Supervisor sign

Seat No.



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MSC (Semester 3) Internal Quiz - 2025

PS03MAZOO01 : ANIMAL BIOTECHNOLOGY & IMMUNOLOGY

Date: 22/09/25 Day: Monday

Time: Maximum 20 minutes

Total marks :15

Q-1 Fill in the blanks with appropriate answer given in the bracket. OR Answer with either true or false.

1. Viruses can multiply only _____ a host cell. (Inside / Outside)
2. Transgenic mice are widely used as _____. (Disease models / Vaccines)
3. The ability of cultured cells to attach to a substrate is called _____. (Cell adhesion / Cell senescence)
4. Fetal bovine serum is used as a _____. (Growth supplement / Antibiotic)
5. The ability of cells to divide repeatedly in culture is called _____. (Proliferation / Differentiation)
6. STAT proteins act as _____. (Transcription factors / Hormones)
7. GPCR signaling commonly uses _____ as a messenger. (cAMP / DNA)
8. Ribosomes in prokaryotes are 70S, while in eukaryotes they are 80S. (TRUE/ FALSE)
9. Transgenic mice are often used in cancer research. (TRUE/ FALSE)
10. Autoclaving is used to sterilize heat-sensitive solutions. (TRUE/ FALSE)
11. CO₂ incubators help maintain the correct pH in culture media. (TRUE/ FALSE)
12. Differentiated cells are always pluripotent. (TRUE/ FALSE)
13. T-cells mature in the thymus, not in bone marrow. (TRUE/ FALSE)
14. Cytokines act as signalling molecules in immunity. (TRUE/ FALSE)
15. GPCRs function without secondary messengers. (TRUE/ FALSE)