(2½ Hours) [Total Marks: 60]

Note: 1) All questions are compulsory
2) All questions carry equal marks
3) Draw neat labelled diagrams wherever necessary.

Q1) Answer the following questions (Any Two) 12
a) Discuss systemic autoimmune diseases with any two suitable examples.
b) "Induced animal models of autoimmune diseases have been proved to be useful to study autoimmune disorders." Justify.
c) Write a note on clinical manifestations of graft rejection.
d) Explain immunodeficiency of myeloid lineage by two suitable examples

Q2) Attempt the following questions (Any Two) 12
a) Diagrammatically explain gene targeting with cre/loxP system.
b) Explain parenteral administration with two suitable examples.
c) Discuss the procedure for producing transgenic mice.
d) Write a note on generation of phage libraries containing antibody binding sites

Q3) Elaborate on the following (Any Two) 12
a) In-Vitro cell imaging techniques
b) Reporter assays.
c) Any two Apoptosis assays
d) Microarrays in immunology.

Q4) Answer the following questions (Any Two) 12
a) Write a note on Psychological Modulation of immunity by Classical Conditioning
b) Describe the role of Glucocorticoids in PNI
c) Explain in detail the application of LAK and TIL in cancer immunotherapy
d) Describe the procedure for identifying genes encoding tumor-specific transplantation antigens.

Q5 Write short notes on (Any Three) 12
a) Chimeric antibodies
b) Graves's Disease
c) GvHD
d) Cytokine expression assays
e) Energy demand and balance in PNI
f) Mixed lymphocyte reaction assay

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