Duration: 3 Hours **Maximum Marks: 100**

Instructions:-

1) Please check if you have received the correct question paper.
2) All the questions are compulsory. Choice is internal.
3) Figures to the right indicate full marks.
4) All questions carry equal marks.
5) Draw flowcharts /diagrams wherever necessary.

Q1A Fill in the blanks (**any three**): 3

i) Immune complexes do not precipitate if _____ is in excess.
ii) The smaller complement component formed on activation and generally contributing to MAC formation is _____.
iii) ABO blood typing uses _____ .
iv) Most efficient antibody for complement activation is mainly _____.
v) Test for use of steroids in athletes is based on _____ agglutination.

Q1B) Answer in brief **any one**: 3

i) Explain the process of enhancing phagocytosis during complement activation.
ii) Define and explain the terms affinity and avidity.

Q1C) Write a note on **any one**: 6

i) Activation of complement by alternate pathway
ii) Agglutination inhibition reactions for diagnosis

Q1D) Answer **any one**: 8

i) Explain the use of agglutination reactions for clinical detection of any two diseases.
ii) Explain the activation of the complement system involving antibodies.

Q2A Fill in the blanks (**any three**): 3

i) Transplant from a goat to a camel , is a type of _____.
ii) Chromosome ____ codes for Human Class II MHC.
iii) ____ is an APC.
iv) The class I MHC is present on all _____ cells.
v) _____ is an example of autoimmune disorder.

Q2B) Briefly explain **any one**: 3

i) Positive selection
ii) Acute transplant rejection

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Q2C) Attempt **any one**: 6

i) With the aid of a neat diagram, describe the structure and function of a MHC-II molecule.

ii) Elaborate on any one organ specific autoimmune disorder.

Q2D) Answer for **any one**: 8

i) Discuss polymorphism as a means of creating diversity on MHC.

ii) Elaborate on the immunological stages of graft rejection.

Q3A) Fill in the blanks (**any three**): 3

i) In HIV, Protease enzyme is responsible for _____.

ii) _____ ratio decreases during AIDS.

iii) _____ sarcoma is more prevalent in people suffering from AIDS.

iv) A structural component that is found in all viruses is _____.

v) _____ is the extracellular form of a virus.

Q3B) Explain **any one** giving the full form of the abbreviation: 3

i) EEV (ii) OPV

Q3C) With the aid of a neat diagram explain the structure of **any one**: 6

i) HIV

ii) Typical virus

Q3D) Answer in detail **any one**: 8

i) Elaborate on the structure and replication of poliovirus.

ii) Elaborate on therapy being used to manage AIDS.

Q4A) Fill in the blanks (**any three**): 3

i) _____ is also known as senescence.

ii) During ageing _____ protein levels are depressed.

iii) _____ is a potential cross linker.

iv) Alzheimer's associated symptoms in the early stage resemble _____.

v) Diabetes _____ is associated with low insulin levels.

Q4B) Answer in brief a**ny one**: 3

i) What is Gerontology?

ii) State any two points of difference between Diabetes mellitus and Diabetes insipidus.

Q4C) Write a short note on **any one**: 6

i) Theories propagated to explain ageing .

ii) Pathophysiology of Alzheimer's disease

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Q4D) Attempt **any one**: 8

i) Do you agree that the changes in enzymes as well as length of telomere contribute to ageing? Support your answer with valid reasons.

ii) Explain - Diabetes mellitus is caused not only due to an endocrine disorder.

Q5A) Write brief note on **any one**: 4

i) Ouchterlony reaction

ii) Effects of the complement system.

Q5B) Answer **any one**: 4

i) Write briefly on dendritic cells.

ii) Describe the types of grafts generally never rejected.

Q5C) Answer **any one**: 4

i) Write a brief on symptoms of AIDS .

ii) What reasons contribute to ineffectiveness of anti-influenza vaccine?

Q5D) Attempt **any one**: 4

i) Explain the role of free radicals in ageing.

ii) Write a brief on Diabetes insipidus.

Q5E) State true or false (**any four**): 4

i) Each antigen can bind to an antibody through its epitope.

ii) Agglutination reactions take more time.

iii) All types of arthritis are autoimmune disorders.

iv) C5a is an anaphylatoxin.

v) The viral envelope is made of glycoproteins.

vi) Vaccinia virus has helical symmetry.

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