

Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH (BT)/SEM-5/BT-501/2009-10

2009

IMMUNOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

i) An opsonin is

a) a chemotactic factor

b) a chemokine

c) a substance that enhances phagocytosis

d) a lysosomal enzyme.

ii) A receptor that binds antibody to a cell surface is called

a) Fc receptor

b) complement receptor

c) CD molecule

d) selectin.

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[Turn over

- iii) The thymus is
- a) a primary lymphoid organ
 - b) a secondary lymphoid organ
 - c) a reticuloendothelial organ
 - d) a lymphoreticular organ.
- iv) Helper *T* cells are distinguished by having which marker ?
- a) CD2
 - b) CD3
 - c) CD4
 - d) IL-2 receptor.
- v) The foetus can be considered
- a) allograft
 - b) xenograft
 - c) heterograft
 - d) isograft.
- vi) The elimination of self-reactive *T* cells from the thymus is called
- a) negative selection
 - b) positive selection
 - c) clonal selection
 - d) apoptosis.
- vii) β 2-Microglobulin is an integral part of
- a) IgM
 - b) MHC Class I
 - c) MHC Class II
 - d) *T* cell receptor.
- viii) The major force linking antigen to antibody is
- a) Hydrogen bonds
 - b) Covalent bonds
 - c) Hydrophobic bonds
 - d) Ionic bonds.
- ix) Maximum precipitation occurs in Ag-Ab reaction in
- a) equivalence zone
 - b) before equivalence zone
 - c) after equivalence zone
 - d) both (b) and (c).
- x) Bivalent fragments of 'Ab' are formed by the proteolytic enzyme
- a) Trypsin
 - b) Papain
 - c) Pepsin
 - d) both (b) and (c).

8. Can you use polyclonal antibody as the first antibody in ELISA or Immunofluorescence studies ? Why ? Describe with the help of a neat flowchart the procedure for indirect immunofluorescence. What are attenuated vaccines ? Give two examples of attenuated vaccine. $1 + 3 + 6 + 3 + 2$
9. Can the foetus be regarded as a graft ? Why ? What is erythroblastosis fetalis ? How is it caused ? What are the present therapies for the problem ? $2 + 3 + 2 + 4 + 4$
10. What is clonal selection ? What are memory cells ? How are they produced ? If you treat a sample of polyclonal antibody with (i) pepsin and (ii) papain and run a polyacrylamide gel electrophoresis on the treated samples, what bonding patterns would you expect ? $4 + 3 + 3 + 2\frac{1}{2} + 2\frac{1}{2}$
11. What are the advantages and disadvantages of monoclonal antibodies ? A person develops skin disorders after wearing a metal ring. How could the problem originate ? State the therapeutic and diagnostic uses of monoclonal antibodies. $2 \times 2\frac{1}{2} + 4 + 6$

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