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S. No. of Question Paper : 8722

Unique Paper Code : 253503

C

Name of the Paper : MIHT-509 : Immunology

Name of the Course : B.Sc. (Hons.) Microbiology Part III

Semester : V

Duration : 3 Hours

Maximum Marks : 75

*(Write your Roll No. on the top immediately on receipt of this question paper.)*

Q. No. 1 is compulsory.

Attempt *Five* questions in all.

*All* questions carry equal marks.

1. Justify the following statements :

(a) All antigens are immunogens.

(b) All Ig molecules on the surface of a given B cell have the same idiotype.

(c) Interaction of B7 with CTLA-4 leads to activation of T cells.

(d) Carbohydrates activate the alternate pathway of complement activation.

(e) Freund's complete adjuvant is more potent than incomplete one.

3×5=15

P.T.O.

2. (a) Explain the following terms ( any six ) :

Superantigens, ADCC, Tolerance, membrane bound Ig, polyclonal Immune response,  
Haptens, MHC restriction of T cells, Ig domain, VJ re-arrangements.  $2 \times 6 = 12$

(b) Explain Type I Hypersensitivity. 3

3. (a) Differentiate between (any four) :

(i) RIST and RAST

(ii) Papain and pepsin digestion of antibodies

(iii) Primary and secondary lymphoid organs

(iv) B and T cell activation

(v) Thymus dependent and Thymus independent antigens.  $3 \times 4 = 12$

(b) Explain organ specific autoimmune diseases with examples. 3

4. (a) Explain C5 convertase formation in classical pathway of complement activation. 4

(b) Write about uses of Monoclonal Antibodies. 3

(c) Draw a well labelled diagram (only) of spleen. 4

(d) Write the contributions of the following scientists :

(i) Elle Metchnikoff

(ii) Rodney Porter

(iii) Mac Farlane Burnet

(iv) Neils K. Jerne.

1×4=4

5. (a) Give *one* word for the following :

(i) Antibody which can cross placenta

(ii) Macrophage of Kidney

(iii) Dendritic cell found in T-cell rich region of Lymphoid organ

(iv) Technique used for separation of T Lymphocytes

(v) Property of HSC that enables it to generate all blood cells

(vi) Accessory membrane molecule on Tc cell.

$\frac{1}{2} \times 6 = 3$

(b) Explain the endocytic pathway of Antigen processing.

4

(c) Write the characteristic feature of the following immunodeficiency diseases :

(i) Chediak- Higashi syndrome

(ii) SCID.

1×2=2

(d) Elaborate the following terms :

PRR, TAP, HIM, IEL, ARAM, CML.

$\frac{1}{2} \times 6 = 3$

(e) Write a note on inflammation.

3

P.T.O.

6. (a) Explain how destruction of target cells occur by CTLs. 5
- (b) Explain the structure and function of class I MHC molecules. 4
- (c) Give the functions of the following (any *three*):
- Anaphylatoxins, M cells, Thymic selection of T cells, Haptens 2×3=6