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Roll No. | | | | | | | | | | |

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.

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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

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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. 2×6=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. 3×4=12

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

4. (*a*) Explain C5convertase 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

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(*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. ½×6=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. ½×6=3

(*e*) Write a note on inflammation. 3

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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

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