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Sr. No. of Question Paper : 8636

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Roll No.....

Unique Paper Code : 223501

Name of the Paper : ZOHT-507 : IMMUNOLOGY

Name of the Course : B.Sc. (Hons.) Zoology, Part – III

Semester : V

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates :

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

Attempt five questions in all. Question No. 1 is compulsory.

Q1. (a) Define any four :

(1 x 4 = 4)

- i. Abzymes
- ii. Extravasation
- iii. Transcytosis
- iv. Agglutination
- v. Humoral Immunity

(b) Expand the following:

(1 x 4 = 4)

- i. TCR
- ii. PAMP
- iii. MALT
- iv. ADCC

P.T.O.

(c) Indicate whether the following statements are True or False:

(1/2 x 6 = 3)

- i. Adaptive immunity is present in all the vertebrates.
- ii. Colostrum contains IgM.
- iii. Haptens can elicit an immune response on their own.
- iv. Lymph nodes filter antigens from the interstitial fluid.
- v. Basophils are non-phagocytic granulocytes.
- vi. Interferons are cytokines that inhibit viral replication.

(d) Differentiate between:

(2 x 4 = 8)

- i. Active and Passive Immunity
- ii. Affinity and Avidity
- iii. NK cells and Dendritic cells
- iv. Apoptosis and Necrosis

(e) Name the contributions of the following scientists:

(1 x 2 = 2)

- i. Edward Jenner
- ii. Rodney Porter and Gerald Edelman

(f) Match the following:

1/2 x 6 = 3)

TNF α	Mast Cells
Histiocytes	Cytokine
Histamine	Antibody
Epitope	T Helper Cells
CD $^{4+}$	Antigenic determinant
Plasma cells	Macrophage

(g) Give reasons for the following:

(1 x 3 =3)

- i. Why IgM functions more effectively than IgG in bacterial agglutination?
- ii. Why does innate and adaptive immunity work in a cooperative manner?
- iii. Why is skin an important anatomical barrier?

- Q2: a) Diagrammatically depict the structure of a typical antibody and discuss the distinguishing features of different classes of immunoglobulins. (7)
- b) Discuss the forces that are responsible for antigen-antibody interactions. (5)
- Q3. a) Describe the structure and functions of the cells of innate and adaptive immunity. (8)
- b) Compare the MHC Class I with the MHC Class II molecules. (4)
- Q4. a) Give an account of the cytosolic pathway of antigen processing and presentation. (6)
- b) What are cytokines? Discuss any three properties of cytokines. (4)
- c) How does antigen mixed with an adjuvant improve the immune response? (2)
- Q5. a) Enumerate the various steps involved in the classical pathway in complement system. (7)
- b) Draw a well-labelled diagram of T.S. of Thymus. (3)
- c) Compare the properties of epitopes recognized by B cells with that of T cells. (2)
- Q6. a) What are vaccines? Discuss different types of vaccines and their immune responses? (8)
- b) Define hypersensitivity and give the Gell and Coombs classification for hypersensitivity. (4)

Q7. Write short notes on any *three* of the following:

(4,4,4)

1. Hybridoma
2. RIA
3. Clonal Selection Theory
4. Inflammatory response