2018

BIOTECHNOLOGY

BIT-201

IMMUNOLOGY

Full Marks: 80

Time: 3 Hours

The figures in the margin indicates full marks for the questions

1. Answer the following question (any eight) 8 × 1=8

a. Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule?

(i) Antigen (ii) Virus

(iii) Hapten (iv) Miligen 1

b. Be cells mature in the ..... while T cells mature in the

(i) Thymus/bone marrow and gut associated lymphoid tissue (GALT)

(ii) Spleen/bone marrow and GALT

(iii) Bone marrow and GALT/Thymus

(iv) Liver/Kidneys 1

c. In agglutination reactions, the antigen is a ..... in precipitation reactions, the antigen is a .....

(i) Whole cell/soluble molecule

(ii) Soluble molecule/whole cell

(iii) Bacterium/virus

(iv) Protein/carbohydrates 1

d. The membrane attack complex consists of :

(i) OH (ii) Colicins

(iii) C3b3b, Bb (iv) C5b,6,7,8,9 1

e. Fussion between a plasma cell and a tumor cell creates a

(i) Myeloma (ii) Natural killer cell

(iii) Lymphoblast (iv) Hybridoma 1

f. Type I hypersensitivity can be blocked using

(i) Histamine (ii) An IgA myeloma

(iii) Sodium cromoglycate (iv) Interleukin-5 1

g. Enhance uptake of antigen by APC due to coating of antibody or C3b is called _____.

(i) Agglutination (ii) Opsonization

(iii) Anaphylaxis (iv) None of this 1

h. The intermolecular forces which contribute to the interaction between antibody and antigen

(i) Are all electrostatic (ii) Are all van der Waals.

(iii) Are all hydrophobic (iv) Are all hydrogen bonds. 1

(v) Rely on a combination of the above

i. Cell mediated immunity is carried out by ..... while humoral immunity is mainly carr out by .....

(i) B cells/T cells (ii) Epitopes/Antigens

(iii) T cells/B cells (iv) Antibodies/Antigens 1

j. Cancer cells often have reduced amounts of cell surface proteins, including class I MHC antigens. Which of the following cells of

immune system can exploit this property to kill cancer cells?

(i) Cytotoxic T-cells (ii) Natural Killer cells

(iii) Helper T-cells (iv) Macrophages 1

2. Distinguish between (any six) 6×2=12

a Allograft and Xenograft

b. Precipitation Vs agglutinations

c. Classical and Alternative Complement System

d. Type III hypersensitivity & Type–IV hypersensitivity

e. Epitope & Paratope

f. ADCC and CMI

g. Active and Passive Immunity

3. Write short notes on (any four) 5×4=20

a. Cancer Immunotherapy

b. MHC

c. Tuberculosis

d. MAC

e. Cytokins

f. Immunoglobulin Superfamily

4. Answer (any two)

a. What is transplantation? Mention the different types of transplantation with examples. 2+6=8

b. What is Antibody Dependent Cell Mediated Cytotoxicity? Describe the mechanism of action with a labeled diagram. 2+6=8

c. What is antigen processing and why it is required? Mention the different types of antigen processing. 1+1+2+4=8

d. Describe briefly the mechanism of self and non self recognition 8

5. Answer (any two) 12×2=24

a. What is oncology? Mention different types of tumours. Highlight the different antigens associated with tumour. Describe the role of viruses in cancer development. 2+3+3+4=12

b. What is meant by antibody diversity? Describe the mechanism by which a B lymphocyte does class switching of antibody with suitable diagram? 2+10=12

c. What is hypersensitivity and distinguish it from autoimmunity? Describe the different type of hypersensitivity with labeled diagram. 5+7=12

d. Describe Cell Mediated Immunity? Describe the role of T Cell in recognizing and responding to forign antigens with suitable diagram. Define. 2+10=12

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