2018

ZOOLOGY

ZOO-403C

MOLECULAR IMMUNOLOGY

Full Mark: 80

Time: 2 Hours

The figures in the margin indicates full marks for the questions

1. Answer the following multiple choice questions ***(any eight) :*** 1x8=8

a) Super antigen activates
   i) T-cell
   ii) B-cell
   iii) Antigen presenting cell
   iv) NK cell

b) Antigen binding is associated with
   i) Immunoglobulin fold
   ii) Hypervariable region
   iii) Framework region
   iv) Immunoglobulin domain

c) Two classes of antibodies that can be expressed simultaneously are
   i) IgM and IgG
   ii) IgG and IgE
   iii) IgD and IgM
   iv) IgG and IgD

d) Which one of the following is not a phagocyte?
   i) Eosinophils
   ii) Neutrophils
   iii) NK cell
   iv) Macrophages

e) Which of these cells are usually found in the tissues?
   i) Red blood cell
   ii) Neutrophils
   iii) Mast cells
   iv) Platelets

f) Immunogen stimulates
   i) B cell only
   ii) T cell only
   iii) Both B and T cells
   iv) Neither B nor T cell

g) The number of immunoglobulin domains in the heavy chain of antibody are
   i) 2
   ii) 4
   iii) 6
   iv) 8

h) B_2 –microglobulin is a part of
   i) Class- I MHC
   ii) Class-II MHC
   iii) Class-III MHC
   iv) All of the above

i) MHC plays important role in all, except
   i) Tissue transplantation
   ii) Blood transfusion
   iii) Antigen presentation
   iv) T-cell response

2. Answer the following short type questions *(any five)* : 2x5 =10

a) What is ADCC?

b) What is a nude mouse?

c) Comment on SLE.

d) What is perforin?

e) What is domain folding of antibody molecule?

f) The S-value of IgA may be 7, 9 or 11. Why?

3. Answer the following *(any four)* : 5x4 = 20

a) Discuss about the structure of human MHC Class-II molecule with diagram

b) How the B-cell gets activated in case of T-cell dependent antigen?

c) What is inbreed strains of mice? Why they are used for immunological experiments?

d) Who is Susuma Tonewaga? What is class switching?

e) When lectin pathway gets activated and how?

f) There are three different types of action performed by cytokines– what are they?

4. Answer the following long type questions *(any two)* : 9x2=18

a) What is interferon? How does it interfere with production of viruses? 7+2

b) What is primary immunodeficiency disease? Discuss about the causes of primary immunodeficiency diseases. 3+6

c) What is oncogene? How cancer cells escape from immune surveillance? 3+6

5. Answer the following very long type question (ant two) : 12x2=24

a) How cancer cells escape from immune surveillance? Discuss about the immuno therapy against cancer. 5+7

b) Discuss how parasites evade the immune system of the host? How viruses evade the immune responses? How do you define a cancer cell? What is metastasis? 3+3+3+3

c) When the usage of Western blotting is necessary? Discuss the method of Western blotting. Mention some applications of Western blotting. Why the name Western blotting has been given to this blotting technique? 1+ 6+4+1

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