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Total Number of Pages: 02

B.Tech
PBT5J001

5th Semester Regular Examination 2017-18

Immunology and Immunotechnology

BRANCH : BIOTECH

Time: 3 Hours

Max Marks: 100

Q. CODE: B191

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: *multiple type or dash fill up type* (2 x 10)

- a) Which of the following is an autoimmune disease
a) Type-1 Diabetes mellitus b) Type-2 Diabetes mellitus
c) Haemophilia A d) Sickle cell anemia
- b) Main antibody involved in allergies reaction is _____.
a) IgG b) IgA c) IgD d) IgE
- c) Which of the following is associated with passive immunity?
Long-term immune protection
Infusion of weakened viruses
Passage of IgG antibodies from the pregnant mother to her fetus
Booster shot
- d) B lymphocytes develop immunocompetence in the _____.
e) The antibody molecule is held together by _____ bonds.
- f) A graft from a monkey to a human is an example of an _____ graft.
- g) B cells mature in the _____ while T cells mature in the _____.
- h) The specificity of an antibody is due to _____.
its valence
The heavy chains
The Fc portion of the molecule
The variable portion of the heavy and light chain
- i) Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule?
a) Antigen b) Virus c.)Hapten d). bacteria
- j) Fusion between a plasma cell and a tumor cell creates a _____.
a) Myeloma b) Natural killer cell
c) Lymphoblast d) Hybridoma

Q2 Answer the following questions: *Short answer type* (2 x 10)

- a) In clonal selection of B cells, which substance is responsible for determining which cells will eventually become cloned?
- b) Write the role of *Bursa fabricius* in immune system?
- c) Draw a schematic diagram of a typical IgG molecule and label each of the following parts: H chains, L chains, interchain disulfide bonds, intra chain disulfide bunds, hinge region, Fab region and Fc and all the domains?
- d) Name any two secondary lymphoid organs and mention their important functions?

- e) What is MHC restriction? Name two strategies used for MHC restriction?
- f) What do you mean by allotype and how it differs from Idiotype?
- g) Are the mechanisms of cell-mediated immunity and DTH the same? Name the effector cells in DTH?
- h) Which of the immunoglobulin subtypes crosses epithelial cells by transcytosis and is found in both bodily secretions and breast milk?
- i) Which of the hypersensitivity reaction is called as antibody mediated cytotoxic hypersensitivity reaction?
- j) Differentiate between epitope and paratope.
- Q3** a) What is vaccination? Give an account types and importance of vaccine? **(10)**
b) Describe the mechanism of precipitation? **(5)**
- Q4** a) Discuss the principle utilized and the methods followed in the preparation of monoclonal antibody? **(10)**
b) What is innate immunity? Describe about different types of defense barrier of human body? **(5)**
- Q5** a) What do you mean by dysfunction of the immune system? How the dysfunction is modulated in human? Explain the approaches used for correcting immune dysfunction? **(10)**
b) Write short notes on immunological tolerance. **(5)**
- Q6** a) Briefly explain Genetic basis of antibody diversity. **(10)**
b) What are autoimmune diseases? Explain with examples **(5)**
- Q7** a) What is complement system? Explain the different pathways of activation of complement system. **(10)**
b) Outline the cell mediated and humoral immune response. **(5)**
- Q8** a) "The major histocompatibility complex is a biochemical fingerprint unique to each individual"- Discuss with diagram. **(10)**
b) Name any two primary lymphoid organs and mention their structure and important functions? **(5)**
- Q9** a) Briefly explain the various cell types concerned with the immune response of the human body? **(10)**
b) Write short notes on APC **(5)**