



DCC-003-001519

Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

April / May - 2015

BT - 503 : Immunology

Faculty Code : 003

Subject Code : 001519

Time : Hours]

[Total Marks :

SECTION - I

- 1 The first production of live but non-virulent forms of chicken cholera bacillus was achieved by :
 - (a) Pasteur
 - (b) Salk
 - (c) Jenner
 - (d) Sabin

- 2 Which of the following is the earliest site of hematopoiesis in the embryo:
 - (a) Bone marrow
 - (b) Yolk sac
 - (c) Liver
 - (d) Spleen

- 3 What is an example of a poor immunogen?
 - (a) Glycoproteins
 - (b) Whole fungal cells
 - (c) Glycogen
 - (d) Antibodies

- 4 The major forces linking antigen to antibody are
 - (a) hydrogen bonds
 - (b) van der Waals
 - (c) ionic bonds
 - (d) all of the above

- 5 A plasma cell secretes :
- (a) Antibody of a single specificity related to that on the surface of the parent B-cell
 - (b) Antibody of two antigen specificities
 - (c) The antigen it recognizes
 - (d) Many different types of antibody
- 6 Cytokines
- (a) Are usually around 150-200 kDa
 - (b) Can be pleiotropic
 - (c) Have glycosyl phosphatidylinositol (GPI) anchors
 - (d) Generally act at long range
 - (e) Produce very stable long-lived messenger RNA
- 7 Neutrophil defensins are :
- (a) Anti-toxins
 - (b) Oxygen-dependent
 - (c) Antimicrobial Peptide
 - (d) Enzymes
- 8 CD8 is a marker of :
- (a) B-cells
 - (b) Helper T-cells
 - (c) A neutrophil precursor
 - (d) Cytotoxic T-cells
- 9 The T-cell ligand binding B7 on a professional antigen-presenting cell is :
- (a) CD28
 - (b) CD2
 - (c) LFA-1
 - (d) ICAM-1
- 10 B-cells as distinct from T-cells :
- (a) Are polyclonally activated by phytohemagglutinin
 - (b) Bear surface Ig receptors for antigen
 - (c) Bear surface CD3 molecules
 - (d) Are lymphocytes

- 11 Di George syndrome results from a defect in :
- (a) Purine nucleoside phosphorylase
 - (b) WASP
 - (c) Thymic development
 - (d) DNA repair
- 12 HIV binds to :
- (a) IL-2 receptor
 - (b) NI kappa B
 - (c) Reverse transcriptase
 - (d) CD4
- 13 In thyroid autoimmunity, an antibody causing type V hypersensitivity may be present and is directed against :
- (a) Thyroid stimulating hormone (TSH) receptor.
 - (b) Thyroglobulin.
 - (c) Thyroid peroxidase.
 - (d) Acetylcholine receptor.
- 14 Anaphylaxis can be triggered by cross-linking of IgE receptors on :
- (a) Monocytes
 - (b) Mast cells
 - (c) B-cells
 - (d) Eosinophils
- 15 Rhesus hemolytic disease of the newborn involves :
- (a) IgE.
 - (b) Soluble immune complexes.
 - (c) Antibody to cell surfaces.
 - (d) Cytokine release from T-cells.

- 16 Type IV hypersensitivity is often referred to as :
- (a) Immediate
 - (b) Anaphylactic
 - (c) Anergic
 - (d) Delayed
- 17 A graft between members of the same species is termed an :
- (a) Allograft
 - (b) Autograft
 - (c) Isograft
 - (d) Xenograft
- 18 Antibody titer refers to the :
- (a) Absolute amount of specific antibody.
 - (b) Highest dilution of antibody still able to give a positive result in a test system.
 - (c) Avidity of specific antibody.
 - (d) Concentration of specific antibody.
- 19 Latex particles are often used in :
- (a) Affinity chromatography.
 - (b) Affinity measurements.
 - (c) Agglutination tests.
 - (d) Adjuvant
- 20 Western blots are primarily used to detect :
- (a) Carbohydrate.
 - (b) Lipid.
 - (c) RNA.
 - (d) Protein.

SECTION - II

- 1 (a) Write any three out of six : 6
- (1) What was the classical contribution of Louis Pasteur in the field of Immunology?
 - (2) What do nude mice and humans with DiGeorge's syndrome have in common?
 - (3) What are the two primary characteristics that distinguish hematopoietic stem cells and progenitor cells?
 - (4) How does innate immunity differ from adaptive immunity?
 - (5) What are the various mechanisms used by phagocytes to kill pathogens?
 - (6) Innate and adaptive immunity act in co-operative and inter-dependent ways to protect the host. Discuss the collaboration of these two forms of immunity.
- (b) Write any three out of six : 9
- (1) What kinds of non-covalent interactions are important in antigen-antibody interactions? What aspect of these interactions is most important and why?
 - (2) Briefly describe the structure of TCR receptor.
 - (3) Write applications of ELISA.
 - (4) What is the role of thymus as a primary lymphoid organ?
 - (5) What characteristics should antigens have?
 - (6) What is antigen processing? Discuss briefly about the cytosolic pathway for processing of endogenous antigen.

(c) Write any two out of five : 10

- (1) What is complement system? Discuss in detail about anyone pathway?
- (2) Write in detail about Antibody structure?
- (3) Write structure and function of MHC Class I and MHC Class II.
- (4) Write in detail structure and function of Lymph node as secondary lymphoid organ.
- (5) Enlist different types of leukocytes. Justify the how neutrophil plays an important role as component of Innate Immunity.

2 (a) Write any three out of six : 6

- (1) Briefly describe the similarities and differences among cytokines, growth factors, and hormones.
- (2) Discuss the main effects of IFN- γ and TNF- α during a chronic inflammatory response.
- (3) Would you expect a C1 or C3 complement deficiency to be more serious clinically? Why?
- (4) Exogenous peptides antigens can be presented by class II MHC molecules. Justify.
- (5) Discuss importance of adhesion molecules during inflammatory process.
- (6) What are the advantages and disadvantages of using attenuated organisms as vaccines?

(b) Write any three out of six : 9

- (1) What is cytokine receptor? Describe cytokine-mediated generation and cross regulation of T_H subsets.
- (2) What is need for anti-inflammatory drugs? Discuss function of steroids as anti-inflammatory drugs.

- (3) Define vaccine. Explain advantage of using active immunization over passive immunization.
- (4) What is SCID? What are biological bases leading to SCID?
- (5) Compare antigen recognition by B and T lymphocytes.
- (6) The immune system at times fails to function properly giving example, explain the consequences of Immune dysfunction.

(c) Write any two out of five

10

- (1) What is hypersensitivity? Explain in detail about Type IV hypersensitivity reaction?
- (2) What are different types of grafts? Why allografts are rejected and how can we prevent graft rejection?
- (3) Discuss in detail about Hybridoma technology.
- (4) What do you understand by T cell? Explain how they are activated?
- (5) What is Autoimmunity? Enlist and discuss types of autoimmunity?
