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Total Marks= 50

Time: 1hr

Part A (Answer any 4 questions 4x10=40)

1. Describe the Classical pathway of complement activation with appropriate illustration (6+4)
2. Draw a complete structure of Secretory Immunoglobulin A (sIgA). How does sIgA protect itself from the protease activity in gut lumen? (5+5)
3. What are the different cells of the immune system? Specify the names of Primary as well as organized and unorganized secondary lymphoid organs/tissue. (5+5)
4. Illustrate the different structural components of MHC class I and Class II molecules. What are major differences among these two molecules (6+4)
5. Describe the cytosolic pathway of antigen presentation. What is cross presentation of an antigen. (8+2)
6. Draw the common structure of TLR. Briefly write the known ligands for different TLRs in a tabular form. (4+6)
7. Write short notes on the following: a) Vi and Widal test b) Antibody dependent cell mediated cytotoxicity (ADCC) c) Antimicrobial peptides d) Systemic lupus erythematosus (SLE)

Part B (10x1=10)

1. The formation of memory immune responses is the objective of vaccination. Immunological memory is predominantly the function of which of the following?
a) the complement system b) cells bearing pattern-recognition receptor molecules c) cells of the adaptive immune system d) molecules comprising the chemical barrier
2. When a woman whose blood type is Rh negative is pregnant, she is given the immune globulin to prevent sensitization to an Rh positive fetus. This is an example of which of the following?
a) passive immunization b) active immunization c) adaptive immunity d) innate immunity.
3. A patient presents with an increased number of lymphocytes in his peripheral blood. Which of the following is an appropriate technique to find out which type of lymphocytes these are?
a) enzyme-linked immunosorbent assay (ELISA) b) radioimmunoassay (RIA) c) Western blotting d) flow cytometric analysis
4. A patient's serum is mixed with a known concentration of antigen for the detection of specific antibodies, and this reaction is measured by precipitate formation. As the serum is diluted stepwise 1:1 with phosphate-buffered saline, the strength of the reaction increases rather than decreases. This is probably due to which of the following
a) presence of cross-reactive antibodies b) multiple epitopes on the antigen. c) the presence of polyclonal antibodies d) prozone effect.

5. The role of complement in rapid response to a first exposure to a variety of organisms involves which of the following?
- a) fixing to immunoglobulin b) activation by mannan-binding lectin c) participation in immune complex formation d) activation of C1
6. In some cases we use subcutaneous route as mode of immunization. This route will allow the antigen to do which of the following?
- a) reach the spleen b) be picked up by Langerhans cells c) bind to preexisting antibody d) bind to serum albumin.
7. In order to elicit an immune response, a carbohydrate must be which of the following?
- a) degraded b) bound to a protein carrier c) administered intranasally d) made of polysaccharides.
8. A protein antigen may bind to its specific receptor via which of the following?
- a) disulfide bonds b) hydroxylation c) peptide bonds d) Non covalent bonds.
9. A Six year-old child is found to be blood group A and to have antibodies against blood group B in spite of never having received blood from any donor. What could be source for having B antibodies in her blood ?
- a) Heterophile antigens b) Colostrum feeding c) Mothers blood during fetal life d) gut microflora e) All of the above
10. Mucosal pathogens are neutralized or prevented from attaching onto the intestinal epithelium by
- a) Circulatory Immunoglobulin A (IgA) b) Secretory IgA (sIgA) c) IgG d) Local specialized M cells (Microfoldcells).