**King Saud University**

**Collage of science**

**Department of Botany & Microbiology**



**جامعة المـــلك سعـــود**

**كلية العــــلوم**

**قسم النبات والأحياء الدقـــيــقة**

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**Mid-term exam (451 Immunology)**

**Name: Un. No:**

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**Q1: Choose the correct answer in the following statement: (14 marks)**

**1- Which antibody has a strong avidity to antigen binding by around 107 times?**

1. IgG
2. IgM
3. IgA
4. Fab

2- **What type of variation in a population is present in some individuals but not others? Mostly are due to single amino acid differences.**

1. Isotypic variation
2. Adiotypic variation
3. Allotypic variation
4. Hyper variation

**3- Hypervariable regions (HVR) or complementarity determining regions (CDR) are present in……………**

1. Variable region of heavy chains only
2. Constant region of both light and heavy chains
3. Variable region of both light and heavy chains
4. Variable region of light chains only

**4- Which antibody has the ability to cross the placenta and fix complements?**

1. IgM
2. IgG
3. IgA
4. IgD

**5- Which statement is true about IgA?**

1. Found on the surface of circulating B lymphocytes with IgM
2. Predominant Ig in mucosal secretions eg. saliva and colostrum
3. Predominant antibody of a secondary immune response.
4. Most efficient complement fixing antibody

**6- Which chemical components have the property of a strong immunogenicity and are considered a T- dependent antigen?**

1. Polysaccharides
2. Lipids
3. Proteins
4. Hapten

**7- Active regions of an antigen that binds to antigen-specific receptors on lymphocytes or to secreted antibodies.**

1. Epitope
2. Antibody
3. Antigen binding site
4. Fc receptor

**8- β2- macroglobulin and a long α chain are both main components of……………**

1. T cell receptor
2. B cell receptor
3. MHC I molecule
4. MHC II molecule

**9- Which statement is true about MHC class II molecule?**

1. Expressed by most nucleated cells
2. Bind peptides from exogenous antigens
3. Peptides are 8-11 amino acids in length
4. Restriction element for CD8+ T cells

**10- Sites of intense B-cell proliferation, selection, maturation and can be found in primary and secondary lymphoid follicles.**

1. Germinal centre
2. Bone marrow
3. Thymus
4. Peripheral blood

**11- The central lymphoid tissue where T cells maturation is………..**

1. Tonsils
2. Thymus
3. Spleen
4. Payer’s patches

**12- One of the features of adaptive immune response below is false.**

1. Antigenic Specificity
2. Immunologic memory
3. Self/ Non-Self Recognition
4. First line of defence against infection

**13- A cascade of plasma proteins that provide rapid defence against infectious agents.**

1. Antibody
2. Immunogen
3. Complement
4. Toll-like receptor (TLR)

**14- The main function of CD4+ Th2 cells is ……….**

1. Helper cells for macrophages activation
2. Helper cells for cytotoxic T cells
3. Helper cells for B cells activation
4. Non of the above

**Answer only 2 of the following questions:**

**Q3: Mention 2 different types of the molecular mediators of innate immune response that enhance phagocytosis? And write short notes about one of them? (3 marks)**

**Q4: What are the similarity and differences between TCR and BCR? (3 marks)**

Differences:

1. Antigen binding site:
2. Basic structure:

Similarity:

**Q5: Describe in details the basic structure of antibody (with draw) and functions? (3 marks)**

Good luck

Dr. Ayman S Mubarak