SSR DEGREE & PG COLLEGE (AUTONOMOUS)

M.Sc BIOTECHNOLOGY

INTERNAL ASSESSMENT -II

QUESTION BANK

SEM – II

PAPER : IMMUNOLOGY

I) CHOOSE THE CORRECT ANSWERS:

1. The Major Histocompatibility Complex (MHC) in humans is also known as
a) TCR
b) HLA
c) IgG
d) BCR
Answer: b) HLA

2. Human MHC genes are located on which chromosome?
a) Chromosome 6
b) Chromosome 11
c) Chromosome 14
d) Chromosome 21
Answer: a) Chromosome 6

3. MHC molecules are primarily involved in
a) Hormone synthesis
b) Antigen presentation
c) Blood clotting
d) Digestion
Answer: b) Antigen presentation

4. MHC Class I molecules are present on
a) Only B cells
b) Only T cells
c) All nucleated cells
d) RBCs only
Answer: c) All nucleated cells

5. MHC Class II molecules are mainly expressed on
a) Erythrocytes
b) Platelets
c) Antigen-presenting cells
d) Muscle cells
Answer: c) Antigen-presenting cells

6. Which of the following is an example of a professional antigen-presenting cell?
a) Neutrophil
b) Macrophage
c) RBC
d) Fibroblast
Answer: b) Macrophage

7. MHC genes are inherited in the form of
a) Operons
b) Haplotypes
c) Alleles only
d) Chromatids
Answer: b) Haplotypes

8. Expression of both maternal and paternal MHC alleles is called
a) Dominance
b) Codominance
c) Recessiveness
d) Mutation
Answer: b) Codominance

9. Which class of MHC presents endogenous antigens?
a) Class I
b) Class II
c) Class III
d) None
Answer: a) Class I

10. Which class of MHC presents exogenous antigens?
a) Class I
b) Class II
c) Class III
d) Both I and III
Answer: b) Class II

11. MHC Class I molecules interact with
a) $CD4^+$ T cells
b) $CD8^+$ T cells
c) B cells only
d) Plasma cells
Answer: b) $CD8^+$ T cells

12. MHC Class II molecules interact with
a) $CD8^+$ T cells
b) NK cells
c) $CD4^+$ T cells
d) Mast cells
Answer: c) $CD4^+$ T cells

13. The β2-microglobulin component is associated with
a) MHC Class I
b) MHC Class II
c) Antibodies
d) TCR
Answer: a) MHC Class I

14. MHC Class I molecule consists of
a) One α chain only
b) Two β chains
c) One α chain and β2-microglobulin
d) One α and one β chain
Answer: c) One α chain and β2-microglobulin

15. MHC Class II molecule is composed of
a) One α chain only
b) One β chain only
c) One α and one β chain
d) β2-microglobulin only
Answer: c) One α and one β chain

16. Which region of MHC molecule binds antigenic peptides?
a) Constant region
b) Peptide-binding groove
c) Fc region
d) Hinge region
Answer: b) Peptide-binding groove

17. Which MHC class contains HLA-A, HLA-B, and HLA-C genes?
a) Class I
b) Class II
c) Class III
d) None
Answer: a) Class I

18. HLA-DP, HLA-DQ, and HLA-DR belong to
a) MHC Class I
b) MHC Class II
c) MHC Class III
d) Immunoglobulins
Answer: b) MHC Class II

19. MHC polymorphism refers to
a) Presence of many genes
b) Presence of many alleles in a population
c) Gene deletion
d) Protein degradation
Answer: b) Presence of many alleles in a population

20. The primary function of MHC molecules is to
a) Produce antibodies
b) Destroy pathogens directly
c) Present peptide antigens to T cells
d) Produce cytokines
Answer: c) Present peptide antigens to T cells

II) FILL IN THE BLANKS:

1. Small proteins secreted by immune cells that regulate immune responses are called **Cytokines**.

2. Interleukins involved in stimulation of hematopoiesis are known as **Hematopoietic cytokines.**

3. Excessive production of cytokines may lead to a severe condition called **Cytokine storm**.

4. Interferons are cytokines mainly involved in **Antiviral defense.**

5. Colony Stimulating Factors (CSFs) promote the production of **Blood cells.**

6. The antigen recognition molecule present on T lymphocytes is called the **T-cell receptor (TCR).**

7. The T-cell receptor is associated with the **CD3** complex for signal transduction.

8. CD4 molecules are mainly present on **Helper T cells.**

9. CD8 molecules are mainly present on **Cytotoxic T cells.**

10. T-cell maturation primarily occurs in the **Thymus**.

11. Activation of naïve T cells requires recognition of antigen presented by **MHC molecules.**

12. Differentiation of activated B cells leads to formation of **Plasma cells.**

13. Mature B cells are primarily activated in **Secondary lymphoid organs.**

14. Cytotoxic T cells destroy infected cells by releasing **Perforins** and granzymes.

15. Natural Killer cells are important components of **Innate immunity.**

16. Immunity mediated by antibodies is called **Humoral immunity.**

17. The first exposure to an antigen produces the **Primary immune response**.

18. The secondary immune response is faster due to the presence of **Memory cells.**

19. Switching of antibody production from IgM to another antibody class is known as **Class switching.**

20. The most abundant antibody produced during the primary immune response is **IgM**.

III) ANSWER THE FOLLOWING QUESTIONS

1)Define MHC? Write about types of MHC molecules

2)Explain about Antigen presenting Cells

3)What is Hybridoma? Explain about production of Monoclonal antibodies

4)Write About any 2 types of Immunoglobulins

5) Differentiate between B-Cells and T-Cells.