

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, May 2023**

<b>Course: Immunology and Immunotechnology</b>	<b>Semester : IV</b>
<b>Program: Int. BMSc Microbiology</b>	<b>Duration : 3 Hours</b>
<b>Course Code: HSMB2016</b>	<b>Max. Marks: 100</b>

**Instructions: Read all questions carefully**

<b>S. No.</b>	<b>Section A</b>	<b>Marks</b>	<b>COs</b>
	<b>Short answer questions/ MCQ/T&amp;F</b> <b>(20Qx1.5M= 30 Marks)</b>		
Q 1	Innate immunity present since birth and it has no memory? (A) True (B) False	1.5	CO1
Q 2	Which of the following antibody gives a primary immune reaction (A) IgG (B) IgM (C) IgA (D) IgE	1.5	CO1
Q 3	What is the origin of T-cell? (A) Pancreas (B) Liver (C) Thymus (D) Bone marrow	1.5	CO1
Q 4	NK cells can kill their target even in the absence of antigen (A) True (B) False	1.5	CO1
Q 5	Name the molecule which constitutively expressed on the dendritic cell? (A) Class I MHC (B) Class II MHC (C) Antigen (D) TCR	1.5	CO2
Q 6	All the individual of the same species has the same allele of MHC genes? (A) True (B) False	1.5	CO2
Q 7	Which of these are non-professional antigen presenting cells? (A) Macrophages (B) Dendritic cells (C) Fibroblast (D) B-cells	1.5	CO2
Q 8	Name the class of MHC which is recognized by CD4 TH cell (A) MHC I (B) MHC II (C) MHC III (D) MHC cannot recognize T-cells	1.5	CO2
Q 9	Which of the following statement is INCORRECT about superantigens? (A) Viral or bacterial proteins (B) Endogenous by nature (C) Unique binding ability (D) Activate a large number of T-cells	1.5	CO3

Q 10	Which immunoglobulin can pass through placenta? (A) IgD (B) IgM (C) IgA (D) IgG	1.5	CO3
Q 11	Which of the following is responsible for B-cell activation? (A) Infection (B) Antibody (C) Antigen (D) Allergy	1.5	CO3
Q 12	Hybridoma technology is used to produce ____? (A) Interferons (B) Monoclonal antibodies (C) Immune response (D) Antigens	1.5	CO3
Q 13	Tolerance of self-antigen by B-cells are known as B-cell tolerance (A) True (B) False	1.5	CO4
Q 14	Name the major constituents of cytotoxic T-lymphocyte? (A) Lysozyme (B) Lymph (C) Protein (D) Perforin and granzyme	1.5	CO4
Q 15	The inappropriate response of immune system towards a relatively harmless antigen causing harm to the host is referred as (A) Hypersensitivity (B) Auto-immune disorder (C) Immunodeficiency (D) Tolerance	1.5	CO4
Q 16	HIV attacks (A) T helper cells (B) T cytotoxic cells (C) B cells (D) Macrophages	1.5	CO4
Q 17	Which of the following can be used as vaccine? (A) Live attenuated viruses (B) Inactivated cell culture grown viruses (C) Recombinant protein (D) All of these	1.5	CO5
Q 18	The process of weakening a pathogen is called (A) Vaccination (B) Attenuation (C) Immunization (D) Virulence reduction	1.5	CO5
Q 19	The transfer of individuals own tissue to another part of the body is called (A) Autograft (B) Xenograft (C) Allograft (D) Syngenic graft	1.5	CO5
Q 20	The major molecule responsible for rejection of transplant is (A) B-cells (B) T-cells (C) MHC molecule (D) Antibodies	1.5	CO5

<b>Section B</b> <b>(4Qx5M=20 Marks)</b>			
Q 1	Differentiate between humoral and cell-mediated immunity	5	CO1
Q 2	Briefly describe different types of antigen-antibody reactions	5	CO2
Q 3	What is an autoimmune disease? List any three examples	5	CO3
Q 4	What are complement proteins and how do they function in immune response?	5	CO1
<b>Section C</b> <b>(2Qx15M=30 Marks)</b>			
Q 1	A scientist wants to produce a monoclonal antibody against the mouse insulin for his research purpose A. How do you produce the anti-insulin antibody? Describe the methodology in detail B. Which method would you use to analyze the specificity of the anti-insulin antibody against the mouse insulin?	15	CO2
Q 2	A patient is infected with the SARS-CoV-2 virus A. Explain the diagnostic test to diagnose the viral infection? B. How would you quantify the viral load? C. How would you identify the different viral variants of SARS-CoV-2?	15	CO3
<b>Section D</b> <b>(2Qx10M=20 Marks)</b>			
Q 1	Describe the different types of tissue grafting and discuss their pros and cons	10	CO4
Q 2	Compare the different types of immunoglobulins and its localization in detail with an illustration	10	CO5