UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2020 Programme Name: M. Sc. Clinical Research Course Name : Microbial phyology and Immunology Course Code : HSMB7011 Semester : I Course Code : HSMB7011 SECTION A 1. Each Question will carry 5 Marks 2. Instruction: Complete the statement / Select the correct answer(s) Marks CO1 a.	Name:				
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				5	
		intestinal lumen			
d. Mast cells 4. Macrophages found in the liver		1 8			
e. M cell 5. Phagocytic cells important in the body's defense against parasitic organisms			ortant in the body's defense against		
Q3 Indicate whether each of the following statements is true or false . CO3	03		is true or false .		CO3
a. A large protein antigen generally can combine with many different antibody		•			
molecules					
b. Both TH cells recognize antigen that has been processed and presented with an 5		ç ç	een processed and presented with an	5	
MHC I molecule.					
c. Each MHC molecule binds a unique peptide.d. All antigens are also immunogens.			с.		
e. T-cell receptors can only bind peptide-MHC complexes.			C complexes.		
Q4 Identify the receptors and co-receptors of the following immunologic signaling events 5 CO5	Q4		-	5	CO5

Q5	Match the followinga) THi. has CD8 co-receptorb) Tcii. Matured in bone marrowc) NK celliii. Release antibodyd) B-celliv. Has CD4 co-receptore) Plasma cellv. non-phagocytic killing of altered self cell	5	CO1
Q6	Identify Light chain and heavy chain germ line DNA from the following picture and mark the individual gene clusters (constant, variable, diversity and joining regions)		CO2
		5	
	SECTION B a question will carry 10 marks		
2. Inst Q7	a. Draw an antibody and marked different parts	10	CO2
Q8	b. Write a short note on antigen 5+5 Compare the four types of antigen-binding molecules used by the immune system— antibodies, T-cell receptors, class I MHC molecules, and class II MHC molecules—in terms of the following characteristics:	10	CO3

	a. Specificity for antigen		
	b. Cellular expression(on which cell they expressed)		
	c. Types of antigen recognized		
	Or		
	a. Compare MHC I and MHC II		
	b. Compare B and T cell c. What is hapten ? 4+4+2		
Q9	c. What is hapten ?4+4+2Indicate to which branch(es) of the immune system the following statements apply,		CO1
Q)	using H for the humoral branch and CM for the cell-mediated branch. Some		
	statements may apply to both branches.		
	a Involves class I MHC molecules		
	bResponds to viral infection		
	cInvolves T helper cells		
	dInvolves processed antigen	10	
	eMost likely responds following an organ transplant	10	
	fInvolves T cytotoxic cells		
	gInvolves B cells		
	hResponds to extracellular bacterial infection		
	iInvolves secreted antibody		
	jKills virus-infected self-cells		
Q10	a. Compare innate and adaptive immune response		CO2
	b. What is adjuvant and epitope	10	
	c. Compare Ig M and Ig G. $(4+2+4)$		
Q11	a. Compare humoral and cell-mediated immunity		CO2
-	b. Describes four characteristics of inflammations (5+5)		
	Or	10	
	a. Describe step by step procedure of phagocytosis		
	b. Compare Ig M and Ig G (5+5)		
	SECTION C		
	Question carries 20 Marks.		
	uction: Write long answer.		004
Q12	a. What is MAC? Describe its formation by any of the complement activation		CO4
	pathway		
	b. Compare TH and Tc cells		
	c. What is vaccine?		
	d. Write name of one bacterial two viral vaccines $(10+5+5)$		
	Or	20	
	a. What is apoptosis and necrosis?		
	b. Write the importance of thymus in our immunity		
		1	1
	c. Compare active and passive immunization		
	c. Compare active and passive immunizationd. Define monoclonal antibody		

	f. Full form of ITAM (4+5+4+2+4+1)		
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