


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester (Odd) Examination, December 2024.			
Course: Microbial Physiology and Immunology		Semester: V	
Program: Integrated B.Sc.M.Sc. ND		Time : 03 hrs.	
Course Code: HSMB30100		Max. Marks: 100	
Instructions:			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
	Statement of question		
Q 1	Draw the structure of MHC II and mark.	4	CO1
Q 2	Write name of two cells that have both types of MHC molecules and two cells that does not have any MHC molecules.	4	CO4
Q 3	Discuss why all immunogens are antigens but not all antigens are immunogens.	4	CO3
Q 4	Briefly describe the four major events in the inflammatory response.	4	CO1
Q 5	Match following keywords with the below statements a) Interferon b) Bradykinin c) Lysosome d) Complement i) Cytoplasmic vesicle containing degradative enzymes ii) Group of serum proteins involved in cell lysis and clearance of antigen iii) Has antiviral activity iv) Stimulates pain receptors in the skin	4	CO2
SECTION B (4Qx10M= 40 Marks)			
	Statement of question		
Q7	a) Define Isotypic, Allotypic and Idiotypic antibody b) Do you think that all immunoglobulin molecules on the surface of a given B cell have the same idiotype? Explain your answer.	5+5=10	CO1
Q 8	a) Write the name of the receptors found over an APC cell. b) What is vaccine? c) Write name of two bacteria and two viral vaccines.	4+2+4=10	CO2
Q 9	a) What is monoclonal antibody? b) Discuss how hybridoma cells are selected from the mixture of other cells? c) Write three applications of monoclonal antibody.	2+5+3=10	CO2

Q 10	<ul style="list-style-type: none"> a) Explain step-by-step process of phagocytosis? b) What is the full form of RSS sequence? c) Write name of three antibody diversification processes in germline DNA. 	5+2+3=10	CO1
SECTION-C			
(2Qx20M=40 Marks)			
	Statement of question		
Q 11	<ul style="list-style-type: none"> a) What is the importance of complement fixation? b) Discuss classical pathway of complement fixation. c) How lectin induce pathway initiated? d) Discuss the ELISA techniques. 	3+8+4+5=20	CO3
Q 12	<ul style="list-style-type: none"> a) Most antigens induce a polyclonal response, explain your answer. b) Compare MHC I and MHC II. c) What is hypersensitivity? d) Classify hypersensitivity? e) Compare hypersensitivity reaction. 	5+5+2+4+4=20	CO5