

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, MARCH 2020
M. Sc. Semester II
Subject: Biotechnology

Paper Code: 11202155

Title of the paper: Immunology

Date: 03 /03 /2020

Time: 2:30 p.m – 4:00 pm

Maximum Marks: 40

Instructions:

- 1. All questions are compulsory and options are given in first and second question only.**
- 2. Numbers to the right of question indicate the marks of respective question.**

Q. 1	Attempt any one question of the following. (i) State the principle and Explain the procedure of Radioimmunoassay. (ii) Explain the structure and function of Thymus as secondary lymphoid organs.	(08)
Q. 2	Attempt any three questions of the following. (i) Discuss about hapten carrier conjugate. (ii) Write a note on Adjuvants. (iii) List out the components used in complement fixation. Describe two step procedure of it. (iv) How hybridoma technology is used for production of identical antibodies? (v) Describe the structure of MHC class I molecule with figure.	(12)
Q. 3	Do as directed. Attempt all five questions. (i) What do you mean by antibody avidity? (ii) Define precipitation. (iii) List out the organs of primary and secondary lymphoid tissue. (iv) Write two basic functions of complement system. (v) Give examples of Adjuvants.	(05)
Q. 4	Write correct option in your answer sheet for following 15 multiple choice questions.	(15)

MCQ 1	Which B lymphocytes of these are non-professional antigen presenting cells?			
	(A)	Macrophages	(B)	Fibroblast
	(C)	Dendritic cells	(D)	B lymphocytes
MCQ 2	Enzymes used in ELISA _____.			
	(A)	Alkaline phosphatase	(B)	β Galactosidase
	(C)	Horseradish peroxidase	(D)	All of them
MCQ 3	A complete antigen is capable of _____.			
	(A)	Inducing an immune response	(B)	Can interact with antibody
	(C)	Induces antibody production	(D)	All of these
MCQ 4	To conduct rocket electrophoresis we require _____ antigen.			
	(A)	Positive	(B)	Negative
	(C)	Mixture	(D)	None of them

MCQ 5	Haptens are immunogenic upon binding _____.			
	(A)	Covalently to a carrier protein	(B)	Covalently to an antibody
	(C)	Covalently to a paratope	(D)	None of these
MCQ 6	In agglutination reaction, due to _____ effect agglutination is prohibited.			
	(A)	Zeta	(B)	Beta
	(C)	Prozone	(D)	Equivalence
MCQ 7	Which of the following is useful to stimulate antibody production?			
	(A)	An adjuvant	(B)	Purified antigen
	(C)	A hapten	(D)	Crude antigen
MCQ 8	Which of the following is not an example of labeled antibody tests?			
	(A)	Fluorescent antibody tests	(B)	Western blots
	(C)	Immunodiffusion test	(D)	ELISA
MCQ 9	The thoracic duct _____.			
	(A)	Enters the spleen	(B)	Forms the interface between the lymph and blood
	(C)	Directly drains the lymph nodes	(D)	Is a part of the lamina propria
MCQ 10	Which of the following is an immunodiffusion test?			
	(A)	Double diffusion	(B)	Ouchterlony technique
	(C)	Gel diffusion	(D)	All of these
MCQ 11	B cells that produce and release large amounts of antibody are called _____.			
	(A)	Memory cells	(B)	Pro B cells
	(C)	Plasma cells	(D)	Pre B cells
MCQ 12	The original home pregnancy test kit employed _____ test.			
	(A)	Agglutination Inhibition	(B)	Bacterial Agglutination
	(C)	Passive Agglutination	(D)	Hemagglutination
MCQ 13	In sandwich ELISA _____ is sandwiched.			
	(A)	Antibody	(B)	Protein
	(C)	Antigen	(D)	None of the above
MCQ 14	Which one of the following is used as fluorochromes in immunofluorescence technique?			
	(A)	Fluorescein	(B)	Phycoerythrin
	(C)	Rhodamine	(D)	All of the above
MCQ 15	Which of the following occurs first in a radioimmunoassay?			
	(A)	The radiolabeled antigens are placed in the sample	(B)	Free radioactive antigens are separated from bound ones
	(C)	The relevant antibodies are added to the blood sample	(D)	The radioactivity level of the sample is measured

