

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY****FIRST SEMESTER – APRIL 2023****PBT1MC04 – IMMUNOLOGY AND IMMUNOTECHNOLOGY**

Date: 04-05-2023

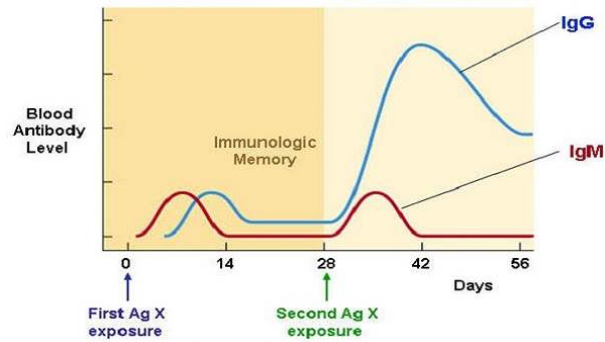
Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

SECTION A**Answer ALL the questions**

1	Choose the best option	(5 x 1 = 5)	
a)	The function of the thymus is to generate and select a) T-lymphocytes c) Monocytes b) B-lymphocytes d) Granulocytes	K1	CO1
b)	Antigens that result in excessive activation of the immune system are a) Hyperantigens c) Superantigens b) Carrier antigens d) Stimulatory antigens	K1	CO1
c)	Which of the following hypersensitivity involves T-cell response? a) Type I c) Type III b) Type II d) Type IV	K1	CO1
d)	Herd immunity can only be achieved in those diseases a) where vaccines are not available b) that are spread through soil c) that depend on human transmission d) that do not depend on human transmission	K1	CO1
e)	An advantage of radioimmunoassay is a) non-hazardous nature of reagents b) long shelf-life of radiolabelled compounds c) picomolar concentrations of hormones can be analysed d) All of the above	K1	CO1
2	Answer in one or two sentences	(5 x 1 = 5)	
a)	Define Peyer's patches.	K2	CO1
b)	How can an incomplete antigen be converted to a complete antigen?	K2	CO1
c)	What is anaphylaxis?	K2	CO1
d)	What is variolation?	K2	CO1
e)	State the principle of immunoturbidimetry and give a clinical application.	K2	CO1
SECTION B			
	Answer any THREE of the following in 500 words	(3 x 10 = 30)	
3	Draw a neat labelled diagram of an immunoglobulin.	K3	CO2
4	Interpret the given graph and give reason for the varying levels of immunoglobulins.	K3	CO2



- 5 Schematically represent Type 1 hypersensitivity. K3 CO2
- 6 The number of deaths due to COVID-19 in a given place was 10,500 and the number of infections in that same place was 21,000. Calculate the infection fatality ratio. K3 CO2
- 7 Describe Rocket Immuno-electrophoresis to quantify a given antigen. K3 CO2

SECTION C

Answer any TWO of the following in 500 words (2 x 12.5 = 25)

- 8 Differentiate between innate and adaptive immunity. K4 CO3
- 9
 - a) Compare Class I and Class II MHC molecules.
 - b) Recommend treatment options for myasthenia gravis.K4 CO3
- 10 Discuss the challenges of developing a vaccine for Covid. K4 CO3

Analyse the given Widal slide test results and explain with reasons. Present an overview of the test.

Sample	Agglutination
Test + O Ag	+
Test + H	+
Test + AH	+
Test + BH	+
Negative Control	-
Positive Control	+

SECTION D

Answer any ONE of the following in 1000 words (1 x 15 = 15)

- 12 Bone marrow transplant is a method to treatment of sickle cell disease. Justify the recommendation with reference to haematopoiesis. K5 CO4
- 13 Compile the different types of immunoglobulins and discuss their biological significance. K5 CO4

SECTION E

Answer any ONE of the following in 1000 words (1 x 20 = 20)

14	Review AIDS as a secondary immune disorder. How has Biotechnology helped in its diagnosis and treatment?	K6	CO5
15	Integrate the principles of immunotechnology to design a method for the production of monoclonal antibodies. Add a note on the applications of monoclonal antibodies in medicine.	K6	CO5

\$\$\$\$\$\$