

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION MO/2025)**

**CLASS: MSc
BRANCH: BIOTECHNOLOGY**

**SEMESTER: III
SESSION: MO/2025**

TIME: 03 Hours

SUBJECT: BT501 IMMUNOTECHNOLOGY

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	Discuss the components of immune system and their role in immunity of Human body.	[5] 1	1
Q.1(b)	Describe the role of phagocytosis in antigen clearance mechanism with the help of a neat and labeled diagram giving the role of MHC.	[5] 2	2
Q.2(a)	What is an antigen? Discuss the properties of antigen. Also describe the effector mechanism by which immunity of our body is maintained.	[5] 2	2
Q.2(b)	Describe the genetic basis of antibody diversity in formation of light and heavy chain which results into diversity of immune system.	[5] 3	2
Q.3(a)	Briefly explain technique of Radio Immuno Assay (RIA) with the help of a labeled diagram and graph and give its applications.	[5] 3	3
Q.3(b)	Write a short note on the following techniques: Comet assay, Surface Plasmon Resonance	[5] 4	4
Q.4(a)	What are immunodeficiency diseases? Discuss about the different types of immunodeficiency diseases along with examples.	[5] 2	4
Q.4(b)	Describe the different types of vaccines along with their advantages and disadvantages along with giving examples.	[5] 4	3
Q.5(a)	Discuss the technique of production of Monoclonal antibodies with special mention of HAT selection.	[5] 3	3
Q.5(b)	Write a short note on a typical reactor system for producing antibodies with the help of a labelled diagram. Also name the different types of reactor systems used for antibody or vaccine production.	[5] 5	3

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