

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

M.Sc-IV Semester (BT)

COURSE CODE (CREDITS): 20MSWBT431 (2.0.0)

MAX. MARKS: 15

COURSE NAME: VACCINES

COURSE INSTRUCTORS: Dr. Tyson

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	Marks
Q1	While the immune system must aggressively fight infections, it also needs to prevent excessive damage to healthy tissues. What different mechanisms ensure this balance?	3
Q2	Antibodies are essential for immunity, yet their functions can vary widely depending on the context. How do factors like structure, antigen binding, and immune interactions determine whether they provide protection, fail to act, or even contribute to disease?	3
Q3	If a pathogen lacks antibodies on its surface, yet the complement system still becomes activated, what alternative mechanisms might be responsible for triggering its response? Justify.	3
Q4	Immune cells communicate through various signals to coordinate responses against pathogens. How do innate immune cells influence the activation and effectiveness of adaptive immune responses?	3
Q5	How do MHC class I and MHC class II molecules differ in terms of their structure, the type of antigens they present, and the immune cells they interact with? Provide an example of a pathogen that would be targeted by each pathway.	3