JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-Nov-2025

MSc (Micro)-I Semester

COURSE CODE (CREDITS): 20B1WBI831 (2-0-0) MAX. MARKS: 25

COURSE NAME: VIROLOGY

COURSE INSTRUCTORS: Dr. Tyson MAX. TIME: 1 Hour 30 Minutes

Note: 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	Viruses are often described as acellular entities with a simple structure. Describe the basic components of a viral particle and explain the role of each in the viral life cycle.	3
Q2	Provide a detailed explanation of the seven classes of Baltimore, including the type of nucleic acid genome, the mRNA synthesis strategy, and one representative virus for each class.	4
Q3	Elaborate on the lytic and lysogenic cycles using lambda phage as an example and detail the key events in each cycle.	4
Q4	In the context of virology, how is Western blotting used to confirm viral protein expression in infected cells? What controls are essential to validate the results and avoid false positives?	4
Q5	Briefly describe the principle in radioimmunoassay (RIA) and explain the process how it enables the quantification of low-abundance viral antigens.	4
Q6	Viruses are obligate intracellular parasites that hijack host cellular machinery to replicate their genetic material and produce progeny virions. This process involves several orchestrated steps, from initial host cell entry to the release of new infectious particles. a) Describe the mechanisms by which different virus families (e.g., enveloped vs. non-enveloped viruses) penetrate the host cell membrane. b) Explain the uncoating process in viral replication, including how the viral capsid is disassembled to release the genome into the host cytoplasm or nucleus.	3+3