JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS- 2024

MSc-I Semester (Micro)

COURSE CODE (CREDITS): 20B1WBI831 (2-0-0) MAX. MARKS: 35

COURSE NAME: Virology

COURSE INSTRUCTORS: Dr. Tyson MAX. TIME: 2 Hours

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	Compare and contrast the replication strategies of DNA and RNA viruses, with a particular focus on the processes of transcription and replication. How do the mechanisms employed by retroviruses and negative-sense RNA viruses differ from those of positive-sense RNA viruses?	4
Q2	Classify bacteriophages based on their genomic material and replication strategies, and outline the key stages of their lytic and lysogenic cycles with appropriate examples.	4
Q3	Compare the pathogenesis, clinical manifestations, and transmission routes of disease caused by variola virus and varicella-zoster virus.	4
Q4	Critically analyze the operational distinctions between sandwich and indirect ELISA techniques, emphasizing variations in sensitivity, specificity, and underlying principles.	4
Q5	In the context of virology research, compare and contrast the utilization of continuous and primary cell lines by discussing their inherent growth properties and experimental applications. Additionally, identify at least two examples for each type.	4
Q6	Elucidate the specific mechanism by which nucleoside analogs in inhibits herpes virus replication. How do these drugs preferentially affect viral cell processes, and what factors contribute to their selective action against herpes viruses?	5
Q7	Explain the pathogenesis, transmission, clinical symptoms, and diagnostic methods associated with retrovirus infections. How does the replication cycle of retroviruses contribute to disease progression?	5
Q8	Outline the structural features of the influenza virus, highlighting its segmented genome and the roles of hemagglutinin and neuraminidase in viral infectivity. How does the segmented genome contribute to viral diversity and adaptability?	5