

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

M.Tech-I Semester (BT/BI)

COURSE CODE (CREDITS): 13M11BT111 (3)

MAX. MARKS: 35

COURSE NAME: Advances in Molecular Cell Biology

COURSE INSTRUCTORS: Dr. Udayabanu

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	Asses the major cell cycle regulators involved in controlling progression through the cell cycle, and explain the key phases of mitosis, outlining the main events that occur in each phase.	5
Q2	Design a protocol to evaluate the mechanism of cell death using appropriate detection methods.	5
Q3	Demonstrate the mechanism of a gaseous signaling molecule with a neat diagram and justify that different cells can respond differently to the same extracellular signal molecule.	5
Q4	Write a note on the following: a. Activation of protein kinase A by cAMP b. Sodium channels closure during rhodopsin activation c. Agonist d. Tumor suppressor genes. e. Micro RNA	2*5 =10
Q5	Organize the process of translation in eukaryotes, describing the major steps involved—initiation, elongation, and termination—and the key molecular components that participate in each stage.	5
Q6	Discuss recent advances in molecular cell biology, highlighting at least one modern technique or discovery that has significantly improved our ability to study and manipulate cells.	5