JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

M.Tech-I Semester (BT/BI)

COURSE CODE (CREDITS): 13M11BT111 (3) MAX. MARKS: 35

COURSE NAME: Advances in Molecular Cell Biology

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

Note: *(a)All questions are compulsory.*

(b)Marks are indicated against each question in square brackets.

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

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1. Sketch a neat diagram to depict the processes involved in signal transduction. Briefly explain how proteins carry the external signal from the cell surface to the nucleus. [5 Marks]
2. Justify with examples how Cyclins and Cdks are involved in cell cycle regulation? [5 Marks]
3. Write a note on recent genome editing technique Crisper/Cas9 and its applications. [5 Marks]
4. Mention DNA damage and the repair mechanisms involved in the cellular machinery. [5 Marks]
5. With a neat diagram explain different classes of cell surface receptors. [5 marks]
6. Explain the following
   a. Extracellular Signal Molecules Can Act Over Either Short or Long Distances. [4 Marks]
   b. Different Cells Can Respond Differently to the Same Extracellular Signal Molecule. [3 marks]
   c. Nitric Oxide Gas Signals by Binding Directly to an Enzyme Inside the Target Cell [3 marks]