

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2023

M.Tech-I Semester (BT/BI)

COURSE CODE (CREDITS): 13M11BT111 (3)

MAX. MARKS: 25

COURSE NAME: Advances in Molecular Cell Biology

COURSE INSTRUCTORS: Dr. Udayabanu

MAX. TIME: 1 Hour 30 Minutes

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*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. Discuss the detailed processes involved in the formation of the primary transcript and its processing during maturation of mRNA in a eukaryotic cell. [5 Marks]
2. What is wobble base pairing? Do wobble base pair follow the Watson-Crick base pair rules? How degeneracy in genetic code correlated with wobble base pair? [5 Marks]
3. Differentiate prokaryotic and eukaryotic ribosome structure. Explain the role of Micro RNA (miRNA) in the Inhibition of Eukaryotic mRNA Translation. [5 Marks]
4. The increase in complexity from the level of the genome to the proteome is facilitated by protein post-translational modifications (PTMs). How Phosphorylation, Ubiquitination and nitrosylation of proteins regulate cellular processes. Explain [5 Marks]
5. Why initiation of transcription in eukaryotes is important? What are the initiating factors involved in the eukaryotic transcription? Explain their role. [5 Marks]