

COURSE CODE (CREDITS): 18B11BI311 (3)

MAX. MARKS: 35

COURSE NAME: Cell and Molecular Biology

COURSE INSTRUCTORS: Dr. Abhishek

MAX. TIME: 2 Hour

Note: (a) All questions are compulsory.

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

Q.No	Question	CO	Marks
Q1	DNA replication is an essential process in all living organisms. It ensures that the genetic information of an organism is accurately passed on to its offspring. Using neat and clean diagram, explain DNA replications, what are the different steps required to complete the replications process.	CO-2	6
Q2	Post-transcriptional modifications add complexity to RNA-mediated functions by regulating how and when a primary RNA transcript is converted into mature RNA. What are the different modifications generally observed in Post-transcriptional events, explain in details.	CO-2	6
Q3	Chromatin consists of very long double-stranded DNA molecules and a nearly equal mass of rather small basic proteins termed histones as well as a smaller amount of nonhistone proteins. a. What are the different types of Histone Protein? And their functions b. What do you understand by heterochromatin and euchromatin. c. Who proposed one gene one enzyme hypothesis d. Why are centromere are so important?	CO-1	2+2+1+1
Q4	Protein biosynthesis (or protein synthesis) is a core biological process, occurring inside cells, balancing the loss of cellular proteins (via degradation or export) through the production of new proteins. Explain various steps involved in protein synthesis and also explain the significance of tRNA in protein synthesis.	CO-2	7
Q5	Biomolecules, or biological molecules, are organic molecules that are produced by living organisms and are essential to biological processes. They are the basic structural and functional components of living cells. Find out the importance of following in bio-molecular chemistry. a. Glycosidic bond b. Peptid bond c. Phosphodiester bond d. Hydrogen bond e. Non covalent bond	CO-1	5

Q6	Cell transport is the movement of substances across a cell membrane, either in or out of the cell. Cell transport is a vital part of cellular biology that helps maintain the cell's surroundings, communication, and essential. Explain and signify the importance of following process in cell transport a. Active Transport b. Passive Transport c. Facilitated Diffusion d. Exocytosis and Endocytosis e. Phagocytosis	CO-3	5
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JUTT 13 EXAMINATION- Dec-2024