JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2024

M.Tech-I Semester (BT)

COURSE CODE(CREDITS):13M11BT111 (3) MAX. MARKS: 15

COURSE NAME: Advances in Molecular Cell Biology

COURSE INSTRUCTORS: Dr. Udayabanu MAX. TIME: 1 Hour

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. DNA Synthesis Proceeds in a 5'-3' Direction and Is Semi discontinuous. Explain. [3 Marks]
2. The replication machinery always have a problem replicating the end of a linear chromosome, specifically, DNA polymerase is unable to synthesize the extreme 5' end of the lagging strand. How this problem could be overcome? [3 Marks]
3. An 84 bp segment of a circular DNA in the relaxed state would contain eight double-helical turns, or one for every 10.5 bp. If one of the these turns are removed, what would happen? [2 Marks]
4. Topoisomerases catalyze changes in the Linking number of DNA. Justify. [2 Marks]
5. Write a note on Wilson's disease and Hemochromatosis. [2 Marks]
6. UV radiation emanating from the sun is the leading cause of skin cancers in humans. Explain its relation with DNA damage. [3 Marks]