JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2025

B. Tech V-Semester (BT)

COURSE CODE (CREDITS): 18B1WBT532 (3) MAX. MARKS: 15

COURSE NAME: COMPARATIVE AND FUNCTIONAL GENOMICS

COURSE INSTRUCTOR: DR. JATA SHANKAR MAX. TIME: 1 Hour

***Note:** All questions are compulsory. Marks are indicated against each question in square brackets.*

Q. No	Question	CO	Marks
Q1	What is the genome size of *E. coli,* and how many genes encoding proteins are estimated to be present in *E. coli*? and calculate the gene density of *E. coli*? How many chromosomes are present in *E. coli*?	CO I	3
Q2	What is the genome size of *S. cerevisiae*? How many genes encoding proteins are estimated to be present in *S. cerevisiae*? Calculate the gene density of *S. cerevisiae*. How many chromosomes are present in the *S. cerevisiae*?	CO I	3
Q3	What percentage of the *E. coli* genome is estimated to be a coding region, and what percentage of the *Human* genome is estimated to be a coding region? Draw a relation between the coding region in the genomes of two distantly related organisms.	CO II	3
Q4	Genomic DNA libraries are used to store, analyse, and sequence an organism's complete genetic material. What is the purpose of constructing a genomic DNA library and a cDNA library applied in the DNA sequencing?	CO I	3
Q5	Describe the principal/detailed mechanism of Sanger's sequencing and draw well-labelled any deoxy nucleotide and dideoxy nucleotide, highlighting the importance in the DNA sequencing? Also, give an account of the history/year of Sanger's sequencing?	CO II	3