

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- 2021

B.Tech-Biotechnology V-Semester

COURSE CODE: 18B1WBT532

MAX. MARKS: 35

COURSE NAME: Comparative and Functional Genomics

COURSE CREDITS: 03

MAX. TIME: 2 Hours

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*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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Q1. What is approximate number of genes and genomes size of *E. coli* (Prokaryote), *S. cerevisiae* (lower eukaryote) and Human (higher eukaryote) genome and give the rationale among these species when you at the genomic data from the given organism? COI (5 marks)

Q2. Short questions COI, COII & COIII (12 marks, each carry 2 marks)

- a. Transcriptome, transcript, and transcription
- c. Splicing and alternate splicing with example
- d RT-PCR
- e. SNP with example
- f. Metagenomics
- g. microRNA and their role

Q3. Define pharmacogenomics? How the efficacy of Gefitinib drug depends on the genotype of host, explain the underlying mechanism and recommendation in certain cancer cases? COIV (4 marks)

Q4. What is DNA microarray and their characteristics? Write on different types of DNA microarray? What are the steps involved in whole genome expression analysis using DNA microarray? COII 7 COIII (Marks 4)

Q5. What do you understand by term BIOMARKER? Define qualitative and quantitative assessment of Biomarker, with suitable example explain role of marker in diagnosis of any cancer? CO IV 5 marks

Q6. Sequencing is essential part of genomics, write on mechanism and application of pyrosequencing OR Illumina sequencing approach? CO I & II (5 marks)