

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION-2022

B. Tech.-V Semester (BT)

COURSE CODE (CREDITS): 18B1WBT532 (3)

MAX. MARKS: 35

COURSE NAME: COMPARATIVE AND FUNCTIONAL GENOMICS

COURSE INSTRUCTORS: DR. JATA SHANKAR

MAX. TIME: 2 Hours

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

- Q1. What are major differences between cDNA- and oligonucleotide-based DNA microarrays; highlight the importance of GC content in both types of DNA array? [3 Marks] CO II
- Q2. Compare the gene density of *E. coli* vs human? [3 Marks] CO II
- Q3. Among 1000 patients, the screening *Egfr* gene was done, a change in base at specific location of the gene was observed in 100 patients. Explain the change in *Egfr* is SNP or point mutation with justification? [3 Marks] CO II
- Q4. Give a comparative data between pyro-sequencing with that to Illumina sequencing? [3 Marks] CO I & III
- Q5. What is metagenomics? How metagenomics analysis helps to improve CO₂ level in the environment, with example? [3 Marks] CO II
- Q6. The response of drug depends on the genotype of a gene, give example of drugs and diseases where genotype is important to selected specific drugs or dose of the drug? [3 Marks] CO III
- Q7. What is biomarker? How it helps to assess the disease identification and drug response? [3 Marks] CO III
- Q8. Describe different strategies/ algorithm used in gene identification for prokaryotic or eukaryotic gene? [4 Marks] CO I
- Q9. Write on following; [10 Marks- each carry 2.5 marks] CO I, II & III
- qRT-PCR
 - Gene Density
 - Oncogene
 - Isoforms with example