

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION-2022

M. Tech.-I Semester (BT)

COURSE CODE (CREDITS): 13M11BT114 (3)

MAX. MARKS: 25

COURSE NAME: HIGH THROUGHPUT TECHNOLOGIES

COURSE INSTRUCTORS: DR. JATA SHANKAR

MAX. TIME: 1 Hour 30 Min

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

- Q1. High throughput DNA sequencing is emerging field among the biotechnology technologies, for genomic DNA or transcriptome, Illumina sequencing emerged very promising. Write the methodology and working of Illumina and point out major differences with Sanger's sequencing technology? 3 marks [CO I & II]
- Q2. How single cell sequencing technologies differ from next generation sequencing technologies referring to relevance cancer biology? 3 marks [CO II]
- Q3. Describe in details to identify the differential regulated genes cancerous cells in comparison to control cells using DNA Microarray technology? 3 marks [CO II]
- Q4. Using proteomic approach, how you are going to differentiate differentially regulated protein in drug-treated *E. coli* cells with that to untreated *E. coli* cells? 3 marks [CO II]
- Q5. GC content is important in hybridization process in DNA microarray whole genome expression analysis; describe the role GC percentage in probe preparation? 3 marks [CO I]
- Q6. Write on following; 10 marks (each carry 2.5 marks) [CO I & COII]
- Metagenomics
 - Normalization
 - SAGE
 - Protein modification