

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATIONS-2022

M. Tech. I Semester (BT)

COURSE CODE (CREDITS): 13M11BT114 (3)

MAX. MARKS: 15

COURSE NAME: HIGH THROUGHPUT TECHNOLOGIES

COURSE INSTRUCTOR: DR. JATA SHANKAR

MAX. TIME: 1 Hour

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

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Q1. What is the genome size of *E. coli* and how many genes encoding proteins are estimated to be present in the *E. coli*? [3 marks] COI

Q2. The cancerous tissues contain heterogeneous cells with respect to mutations, unique pathology or unique drug response, how single cell sequencing approach could distinguish the expression of these cells? [3 marks] COI

Q3. How Illumina sequencing technology belong next generation sequencing? And how it influences the gene identification and gene expression in high throughput studies? [3 marks]

Q4. How single base in the genome or in a gene are introduced in the genome? How does it leads to change function and structure of a gene encoding protein, explain? [3 marks] COI

Q5. What do you mean by metagenomics, explain with an example? [2 marks] COI

Q6 Discuss/Draw the structure of [1.5 marks] COI

- a. ChipSeq
- b. Deoxyribose and
- c. Dideoxy-ribose sugar?

Q7. What is the purpose DNA sequence alignment and mapping? [1.5 marks] COII