JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-MARCH-2024

M.Tech-II Semester (BT)

COURSE CODE (CREDITS): 14M11BT213 (3) MAX. MARKS: 15

COURSE NAME: 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.

Q1. Gene density decreases with increase of genome size in the prokaryotic and eukaryotic organism data, however, the statement is not entirely true while looking at the range of genomic data. Explain with genomics suggesting the statement is true and also data with exception? [2.5 marks] CO I

Q2. Give statistics of human genome project? When it was initiated and when the first draft of human was released? Also determine the percentage of gene coding region in the genome? [2.5 marks] CO I

Q3. In a single cell sequencing technology, what do you understand here ''single cell' that implies the functionality, explain with example? [2.5 marks] CO I

Q4. What is *p53*, state the disease associated with *p53* and the describe model organism to study the diseases? Note on pyrosquencing? [2.5 marks] CO I

Q5. What is the genome statistics of *Arabidopsis thaliana*? What are the salient features of this model organism? Describe the genomic perspective of *A. thaliana* serving as a model organism? [2.5 marks] CO II

Q6. What is orthologous genes, how do you see the role of orthologous gene while selecting a model organism such as *S. cerevisiae* a eukaryotic unicellular organism and it's relevant to study in biological context? [2.5 marks] CO II