JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MAKE-UP EXAMINATION-NOV-2025

MTech-I Semester (BT)

Course Code (Credits): 13M11BT114 (3) Max. Marks: 25

Course Name: High Throughput Technologies (13M11BT114)

Course Instructors: Dr. Abhishek Chaudhary Max. Time: 1.5 Hour

Note: (a)All questions are compulsory.

(b)Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	Marks
Q-1	High throughput technology is one of the most emerging technology in the current time and has applications in drug discovery, genomics, diagnostics, and microbiome research with a key focus on the identification of potential drug candidates, performing whole-genome sequencing, diagnosing genetic disorders, and analyzing microbial communities. a. What do you understand by High Throughput Screening (HTS) b. Justify the role of automation in high throughput technologies c. How would you differentiate between low throughput and high throughput technology? d. Discuss the role of bioinformatics in analyzing high throughput data. e. Discuss the importance of database in biological system	2+2+2 +2+2
Q-2	Fluorescence spectroscopy has wide-ranging applications in various scientific fields, including life sciences, environmental monitoring, and materials science. It is used to analyze biological samples, study structural changes in molecules, identify pollutants, and characterize organic materials. If you would like to study conformational changes in protein using fluorescence spectroscopy. Explain How intrinsic Tryptophan fluorescence can be used to monitor these changes.	5
Q-3	High-throughput sequencing (HTS) uses advanced technologies to rapidly read and analyze millions of DNA fragments at once, which has revolutionized genomics by enabling large-scale projects like whole-genome sequencing much faster and cheaper than traditional methods a. What do you understand by Genome? And how HTS enhance the rate of genome sequencing b. How genome sequencing help in modern medicine? c. Does your genome determine everything about you?	3+2+2
Q4	Discuss how fluorescence quenching occur and mention its type? Also explain the importance of fluorescence spectroscopy in biomedicine	2+1

86