

Dr. Jaya Sree Raman

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION

B.Tech. (Biotechnology Dual Degree) ; IX<sup>th</sup> Semester

Course Code: 13B11BT112

MAX. MARKS: 15

Course Name: Advanced Bioinformatics

Course Credits: 03

MAX. TIME: 1 Hr

---

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

---

1. Explain the pros and cons of microbiome study using traditional microbiology approaches vs the modern day metagenomics (NGS-based) approaches. (2)
2. Explain the significance of alpha and beta diversity in metagenomic studies. Which software is used for this? (4)
3. Discuss the protocol of RNA-seq process, mentioning at every step the programs used to perform the task. Explain the meaning of FPKM in this context. (4)
4. Discuss the protocol of Chip-seq process, mentioning at every step the programs used to perform the task. Explain the meaning of Peak calling. (4)
5. How has bioinformatics promoted the emergence of P4 medicine? (1)