

Dr Tirath Roy

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-3 EXAMINATION DECEMBER 2018
BTech Vth Semester

COURSE CODE: 15B11BI512

MAX. MARKS: 35

COURSE NAME: Computational Genomics

COURSE CREDITS: 4

MAX. TIME: 2HR

Note: All questions are compulsory. Carrying mobile phone during examinations will be treated as a case of unfair means. Calculator is allowed. Attempt Q.7. either at the beginning or end of the answer sheet.

1. Discuss various kind of mapping with a special emphasis on restriction mapping. [3]
(CO: 3-4)
2. Differentiate between partial digest and double digest with their respective applications in genomics. [4] (CO: 3-4)
3. Solve the following DDP for a given set of data:
Enzyme A = 3,4,4,6,9,10; Enzyme B = 4,5,7,8,12; A+B = 1,2,3,3,4,4,4,5,6 [6] (CO: 3-4)
4. What are SNPs? Discuss their screening, analysis and applications with reference to genomic era. [4] (CO: 5)
5. Solve the PDP for the given data set:
[2,3,7,8,9,10,11,12,17,18,19,21,26,29] [4] (CO: 3-4)
6. Explain following with a suitable example: [2*4 = 8] (CO: 1-5)
 - (a) Gene expression and their quantitative analysis.
 - (b) Primer designing principles and applications of primers.
 - (c) Errors in fragment assembly.
 - (d) Genomic era and its role in the progression of genomic technologies.
7. Answer following for NGS: [2*3=6] (CO: 3-5)
 - (i) What are the advantages of NGS over the Sanger sequencing?
 - (ii) Describe the applications of NGS.
 - (iii) Describe the steps in Illumina sequencing.