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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- MAY -2019

B.Tech 4th Semester

COURSE CODE: 15B11BI411

MAX. MARKS: 35

COURSE NAME: Genetic Engineering and Genomics

COURSE CREDITS: 04

MAX. TIME: 2 HR

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

Q.1 Attempt any three of following questions 3x3 = 9 CO II

1. Mention any three commercialized applications of genetic engineering.
2. What is role of following sites in the corresponding vectors *cos sites, pac site, loxP sites*?
3. Draw a well labeled diagram of YAC vector and procedural steps to insert gene of interest in YAC vector.
4. Explain the basis of red and white colony based selection method of recombinant YAC vector containing yeast cells.

Q.2 3x4 = 12 CO IV

- a. Write a short note on restriction maps. The recombination frequency between genes A & D, B & D and C & D are 8, 13, 23 respectively. Draw genetic map.
- b. Discuss properties of an ideal molecular marker, molecular technique and applications of RFLP.
- c. Discuss significance of single nucleotide polymorphism.

Q.3 Attempt any two of following 2x4 = 8 CO III

- a. Define genomic library. What factors dictates the minimum number of clones to be maintained in a genomic library. How this numbers is calculated. (1+1.5+1.5 =4)
- b. Define cDNA library. Why cDNA libraries are more suitable for identification and isolation of gene in eukaryotic organisms, where as genomic libraries may be optimum in case of prokaryotes. (1+1.5+1.5 =4)
- c. What do you understand by screening of gene libraries? Enlist screening methods and elaborate on functional complementation in details. (1+1.5+1.5 =4)

Q.4 6 CO V

What are various applications of genomics / genomics technology?