Dr Anilkant

JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT

T2 EXAMINATION - APRIL 2019

B.Tech (Bioinformatics) IV Semester

COURSE CODE: 15B11BI411 MAX. MARKS: 25

COURSE NAME: Genetic Engineering and Genomics

COURSE CREDITS: 04 MAX. TIME: 1.5 HRS

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

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1. Discuss followings:-
   a. Why cohesive end ligation is specific and blunt end ligation non specific?
   b. You are given a DNA fragment with 5' over hangs. Mention any two methods to convert it into a blunt end fragment.
   c. What are applications of Polymerase Chain Reaction?
   d. What do you understand by cloning and sub-cloning? Why is sub-cloning required to be done? (CO I, CO II; 1.5X4=6.0)
2. Explain process of sub cloning gene of interest from Gateway entry vector to destination vector emphasizing on selection of recombinant destination vector. Draw suitable diagrams? (COII; 3.0)
3. What is a conversion adapter? Show the construction of a conversion adapter having *Bgl*II (A/GATCT) and *ClaI* (AT/CGAT) cohesive ends. (CO II; 3.0)
4. Why PCR products cannot be cloned directly in routine cloning vectors. Enlist any three techniques to insert PCR products in vectors. Explain TOPO TA cloning in detail, highlighting the principle, components of TOPO vectors, cloning procedure and advantages of TOPO TA cloning. (COII; 4)
5. Give detailed description of the chain termination method of DNA sequencing.(COIV; 5)
6. Explain followings:- (COIV; 2+2)
   a. Principle of 454 sequencing.
   b. Bridge amplification and its applications.