

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY
End Term Examination Dec. 2017
B.Tech (Vth Semester)

Course Code: 10B11BT513
Course Name: Genetic Engineering
Course Credit: 04

Max. Marks: 35
Max. Time: 2Hr.

Q.1

3x4=12

- a. PCR can be used as an alternative to genomic DNA cloning? Discuss all aspects including recent capabilities of amplifying longer fragments and cites some successful examples.
- b. How numbers of cDNAs amplified during DDRT- PCR to identify differentially expressed genes are reduced?
- c. Write about any three modifications in original dideoxy method of DNA sequencing along with advancement achieved, which lead to a step forward for automation.
- d. Give a list of gene transfer methods used to transfer gene to plant cells. Briefly discuss the *Agrobacterium* mediated transformation methods.
- e. You are interested to isolate gene from an organism which confer a detectable phenotype to it, but no information is available about its sequence and encoded protein. However gene is mapped with respect to a DNA marker. Outline a strategy to isolate target gene in such a situation.

Q.2

3.5x2=7

- a. 5' cap of eukaryotic mRNA can be used to recover full length cDNA copies of mRNA. Enlist method used and discuss one of method in detail.
- b. What do you understand by screening a gene library by functional complementation? Cite three examples of functional complementation based screening.

Q.4

Enlist common techniques used for development of transgenic animals and discuss microinjection of pronucleus of fertilized ovum detail. What are the applications of transgenic animals? Cite some noted examples of transgenic animals. 8

Q.3

Give detailed account of the steps involved in of construction of cDNA library. Discuss cDNA application of libraries as comparative to genomic DNA libraries. 8