

U.G. 5th Semester Examination-2021
Molecular Biology & Biotechnology

[HONOURS]

Course Code : MBBT-H-CCR-T-12[502(T)]
(Recombinant DNA Technology)

Full Marks : 40

Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions: 2×5=10
 - a) What do you mean by RT-PCR?
 - b) What is BAC?
 - c) What do you mean by isoschizomers?
 - d) What is disarmed Ti-Plasmid?
 - e) What do you mean by "DNA fingerprinting"?
 - f) What do you understand by reporter gene? Give an example.
 - g) Give an example of each of blunt end and cohesive end producing restriction enzymes.
 - h) Differentiate between RAPD and RFLP.

2. Answer any **two** questions: 5×2=10
 - a) What is cDNA Library? Schematically present a strategy of cDNA Library construction. 2+3
 - b) Give an account on PCR based methods of site directed mutagenesis. 5
 - c) Suppose your aim is to join EcoRI insert at EcoRI site of a plasmid. What strategy would you prefer to prevent self ligation of linearized plasmid? How would you convert s' overhang into blunt end? $2\frac{1}{2}+2\frac{1}{2}$
 - d) What are the characteristic features of a Ti Plasmid? What do you understand by selection marker? 3+2
3. Answer any **two** questions: 10×2=20
 - a) How will you create knockout mouse? Write about the applications of knockout animals. Briefly describe about the production of one subunit vaccine by using RDT. 3+2+5
 - b) Describe schematically the different steps of Agrobacterium mediated gene transfer in plants. State the functions of vir genes in Ti Plasmid. 5+5

[Turn Over]

- c) What components are involved in DNA cloning?
What is Phagemid? What is the difference of
Phagemid and Cosmid? What do you mean by
cloning vector? How do you differentiate
between cloning vector and expression vector?

3+1+2+2+2

- d) What is Northern Blot? What is its application?
Your aim is to clone a BamHI digested genomic
DNA fragment at BamHI site of a plasmid
vector. How would you screen the clones to
identify recombinant vector carrying foreign
insert? Outline any two methods of radiolabelled
probe preparation.

1+2+2+5
