

BE. 6th Sem.
Feb. 2023.

Exam. Code: 0910
Sub. Code: 6315

2023

B.E. (Biotechnology) Sixth Semester
BIO-611: Recombinant DNA Technology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.

x-x-x

1. Attempt the following:-

- i. What do you mean by alpha complementation?
- ii. What is the importance of *cos* sites in lambda phage?
- iii. What are adapters and why being these used
- iv. What do you mean by RT-PCR?
- v. How would you define the gene editing, why is it used?
- vi. What type of plasmid is present in yeast?
- vii. How is dideoxy nucleotide different from deoxy nucleotide, Add a note on the importance of the former.
- viii. What is RACE and why is it used
- ix. What is the importance of gel retardation assay?
- x. What is the importance of SDS during plasmid isolation (1x10)

Section-A

- 2a) What are plasmids, why are these used, adding a note on the different types of plasmids, Discuss about the pUC series plasmids.
- b) Add a note on the Ti plasmid. What is its importance. (6+4)
- 3a) Adding a note on nucleases discuss about the restriction endonucleases and their importance
- b) Why do we use terminal deoxynucleotide transferase, what is the importance of this enzyme in recombinant DNA Technology (7+3)
- 4a) What is genomic DNA, how is it different from plasmid DNA elaborate on the how genomic DNA is isolated from Bacteria.
- b) Discuss in detail the PCR technology along with providing its application. (5+5)

Section-B

- 5a) Write a note on what are gene libraries and why are these created.
- b) Explain the problem faced while selection of a cloned gene? What are the various methods used for clone identification? (6+4)
- 6a) Discuss in detail the method of DNA sequencing using Sangers method.
- b) Write a note on FISH and for what purpose this methodology is used. (7+3)
- 7a) Explain the yeast two hybrid system for studying protein-protein interactions.
- b) Discuss how has recombinant DNA technology revolutionized the field of medicine and agriculture. (5+5)

x-x-x