Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous), Rajkot

Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION APRIL -2019

B.Sc. Biotechnology

16UBTCC24 – rDNA TECHNOLOGY

Duration of Exam – 3 hrs   *Semester – VI*   *Max. Marks – 70*

Part A *(10X1= 10 marks)*
Answer **ALL** questions

1. What is STAR activity of an restriction enzyme?

2. What is the main function of DNA ligase?

3. Define COPY NUMBER w.r.t. plasmids.

4. What are the two major functions of "COS" site?

5. What do you mean by Competent cells?

6. Give an diagrammatic representation of homopolymer tailing

7. What is insertional inactivation?

8. Define Genomic library.

9. Mention any two enzymes that are used in PCR reaction.

10. Write the full form of RAPD and AFLP.

Part B *(5X5= 25 marks)*
Answer **ALL** questions

11a. With diagram explain the mechanism of action of DNA ligase.

OR

11b. Give an comparative account of DNA polymerase and Reverse transcriptase.

12a. Mention various desirable features in an plasmid to be used as an cloning vector.

OR

12b. Write a note on Cosmids and their advantages.

13a. Define transformation. Explain microinjection with proper diagram.

OR

13b. Explain LINKERS and ADAPTORS and their significance.

14a. Briefly explain any two screening methods with rationale. (principle)

OR

14b. Write a note on preparation and applications of probes.

15a. Define molecular markers. Explain AFLP with principle, overview and applications.

OR

15b. Mention various applications of recombinant DNA technology.

16a. Give an comparative account Class-I, Class-II and Class-III Restriction enzymes and explin which class among these is best suited for Recombinant DNA technology?

OR

16b. Give an brief overview of entire process of recombinant DNA technology, with the help of an flowchart.

17a. Explain YAC as an cloning vector with diagram, rationale and cloning strategy.

OR

17b. Explain lambda bacteriophage based "insertional" and "replacement vectors" with representative example.

18a. Explain electroporation method and its variants to carry out the transformation method.

OR

18b. Write short notes on: i)   Shotgun method   ii) Liposomes and their significance

19a. Explain c-DNA library preparation with flow chart. Mention two applications c-DNA library.

OR

19b. Explain Southern blotting technique with diagram. Mention its applications.

20a. Explain PCR reaction with principle components and steps involved. Mention various application of PCR.

OR

20b. Explain the principle and overview of Maxam and Gilbert's method Nucleic acid sequencing. Mention at least four applications of DNA sequencing.

_____