

**B. Sc. MICROBIOLOGY
FOURTH SEMESTER
GENETIC ENGINEERING
BMB – 404**

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

[**PART-A: Objective**]

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

1. Transfection is technique of
 - a. Microbes
 - b. Mammals
 - c. Animals
 - d. Vertebrates
2. Lipid vesicles are known as
 - a. Liposome
 - b. SV 40
 - c. Bi membrane layer
 - d. Tri laminar layer
3. Transfected gene portion from external source is
 - a. Trans gene
 - b. rDNA
 - c. Insert gene
 - d. Recombinant DNA
4. Heating and chilling is used for gene delivery in
 - a. Plants
 - b. Animals
 - c. Bacteria
 - d. Fungus
5. The palindrome of EcoRI is.....
 - a. 5'GAATTC3'
 - b. 5'GTTAAC3'
 - c. 5'GATATC3'
 - d. 5'GGATCC3'
6. Enzyme that can add phosphate from the end of DNA is.....
 - a. Phosphatase
 - b. Ligase
 - c. Kinase
 - d. Polymerase
7. Most preferable enzyme in genetic engineering is.....
 - a. Type II
 - b. Type I
 - c. Type III
 - d. All are equally used
8. For sequencingcan be used.
 - a. All types of DNA
 - b. dsDNA
 - c. Hybrid dNA
 - d. ssDNA
9. The end product of expression vector is.....
 - a. Polyamides
 - b. Polysaccharide
 - c. Gene
 - d. Protein

10. Baculo virus based vectors are.....vectors.
 - a. Plant
 - b. Invertebrates
 - c. Fungus
 - d. Bacterial
11. Blotting by which DNA can be checked is.....
 - a. Southern
 - b. Northern
 - c. Western
 - d. Eastern
12. Reverse transcriptase is not required for.....library preparation.
 - a. Copy DNA
 - b. Complementary DNA
 - c. Both are correct
 - d. Genomic DNA
13. Nitrocellulose membrane is used in.....
 - a. Library preparation
 - b. Fingerprinting
 - c. Blotting
 - d. Option D
14. Joining of probe with ssDNA is an example of.....
 - a. Detection
 - b. Extension
 - c. Screening
 - d. Hybridization
15. For visualization in blotting.....can be used.
 - a. Autoradiography
 - b. X-Ray
 - c. Both are correct
 - d. Optional
16. Choose the correct information for RAPD
 - a. PCR based
 - b. Probe based
 - c. Enzyme based
 - d. All are correct
17. Gene expression can be studied by
 - a. Microarray
 - b. AFLP
 - c. VNTR
 - d. DNA fingerprinting
18. The 40-60% of.....is required in PCR.
 - a. AT content
 - b. GC content
 - c. GT content
 - d. AC content
19. Choose the correct option.
 - a. RFLP=AFLP=PCR
 - b. PCR-RFLP=AFLP
 - c. PCR=RFLP=AFLP
 - d. PCR+RFLP=AFLP
20. In, PCR two different size DNAs can be amplified.
 - a. Nested
 - b. Asymmetric
 - c. Anchored
 - d. Real time

(PART-B : Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. What is vector? Explain plasmid in detail. | 2+8=10 |
| 2. a. Write a note on reactions Thermo cycler. b. Differentiate RAPD and RFLP. | 5+5=10 |
| 3. a. What do understand by c DNA library? b. Write the basic steps of cDNA library preparation. | 3 7 |
| 4. a. What is Southern blotting? b. Differentiate the Southern and Northern blotting techniques. | 2 8 |
| 5. What is EcoRI? Explain the palindrome and action of the enzyme on it. | 10 |
| 6. What is lambda phage? Write a note on cosmid. | 2+8=10 |
| 7. a. Mention some of examples of modifying enzymes. b. Compare linker and adaptor. | 6+4=10 |
| 8. a. What is transfection? b. Write in the significance of genetic engineering in health sector. | 5+5=10 |

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