

M.Sc. BIOTECHNOLOGY
THIRD SEMESTER
GENETIC ENGINEERING
MBT-301

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

- Mechanism in which animals are transformed is.....
 - Infection
 - Transduction
 - Transfection
 - Transformation
- SV 40 is used as/for.....
 - Vector
 - Transformation
 - Infection
 - Bioremediation
- Foreign gene is inserted intofor rDNA preparation.
 - Vector
 - Plasmid
 - Directly in host
 - Both a and b
- Golden rice is a.....product.
 - Imported
 - Exported
 - Recombinant
 - Recombinant vitamin A rich
- 'GAATTC3' givesend after nuclease digestion.
 - Sticky
 - Blunt
 - Smooth
 - All of the above
- Enzyme that can remove phosphate from the end of DNA is.....
 - Phosphatase
 - Ligase
 - Kinase
 - Polymerase
- For proper and appropriate site digestion.....enzyme is needed.
 - Type II
 - Type I
 - Type III
 - All are equally used
- Maxam and Gilbert technique ismethod.
 - Transformation
 - Transfection
 - Crystallization
 - Sequencing
- Enzymes are synthesized by using.....vector.
 - BAC
 - Plasmid
 - Cloning
 - Expression
- Liposomes are formed from.....
 - Proteins
 - Membrane
 - Fungus
 - Cell wall

11. Nitrocellulose membrane is involved in.....
 - a. Blotting
 - b. PCR
 - c. DNA isolation
 - d. Sequencing
12. Genomic DNA is the collection of.....
 - a. Only introns
 - b. cDNA
 - c. Only exons
 - d. Complete DNAs
13. Blotting can separate.....
 - a. DNA
 - b. RNA
 - c. DNA, RNA and protein
 - d. Protein
14. Joining of probe with ssDNA is an example of.....
 - a. Detection
 - b. Extension
 - c. Screening
 - d. Hybridization
15. Autoradiography needs incubation at.....
 - a. Dark
 - b. X-Ray
 - c. Only Darkness
 - d. Both a and b
16. Choose the correct information for AFLP.
 - a. PCR and enzyme based
 - b. Probe based
 - c. Enzyme based
 - d. All are correct
17. Fingerprinting can be done by.....
 - a. VNTR
 - b. AFLP
 - c. RNA
 - d. snRNA
18. The primer in PCR.....
 - a. RNA
 - b. DNA
 - c. Gene
 - d. All are correct
19. Restriction endonucleases are used in.....
 - a. RAPD
 - b. PCR and AFLP
 - c. PCR
 - d. RFLP
20. In....., PCR single stranded DNAs can be amplified.
 - a. Asymmetric
 - b. Nested
 - c. Anchored
 - d. Real time

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

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| 1. Write the characteristics of an ideal vector? Explain plasmid in detail. | 2+8=10 |
| 2. a) Write a note on Polymerase chain reaction. | 5 |
| b) Explain the basic principle of RFLP with suitable diagram. | 5 |
| 3. a) What do you understand by cDNA? | 3 |
| b) Write the basic steps and significance of cDNA library. | 7 |
| 4. a) What is Northern blotting? | 2 |
| b) Differentiate Northern and Western blotting techniques. | 8 |
| 5. What are endonucleases? Explain the nomenclature strategy and types of restriction endonucleases. | 2+8=10 |
| 6. What is M13? Write a note on its structure and role as a vector. | 2+8=10 |
| 7. Mention some of examples of genetically modified products with its significance in agriculture and health sector. | 5+5=10 |
| 8. a) What is transfection? | 3 |
| b) Write in the significance of agrobacterium mediated gene transfer. | 7 |

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