

Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University) Coimbatore-641043.

Master's Degree Examination - November 2018

Semester III

Class : II PG
Major : BOTANY

Time: 3 hours
Max. Marks: 60

17MBOC16 PLANT BIOTECHNOLOGY

Part A

10 x 1/2 = 5

Choose the correct answer

1. EcoRI is an example of -----
 - a. Restriction endonuclease
 - b. Polymerase
 - c. Ligase
 - d. Phosphate
2. Ti plasmid is found in -----
 - a. *E. coli*
 - b. *Bacillus subtilis*
 - c. *Agrobacterium tumefaciens*
 - d. *Proteus vulgaris*
3. Agarose Gel Electrophoresis is a technique used to separate _____ based on their molecular weight.
 - a. DNA
 - b. Starch
 - c. Protein
 - d. Fat
4. _____ is an example of Non – labelled probe.
 - a. Histone
 - b. Proline
 - c. Alanine
 - d. Biotin
5. Northern blotting is a technique used to analyse _____ fragments.
 - a. DNA
 - b. protein
 - c. RNA
 - d. All the above
6. _____ is an enzyme used to synthesize DNA by using RNA as template.
 - a. Taq polymerase
 - b. Reverse transcriptase
 - c. DNA polymerase
 - d. RNA polymerase
7. ITS markers have proven useful for elucidating _____
 - a. Phylogenetic relationship
 - b. genome mapping
 - c. DNA polymorphism
 - d. All the above
8. mat K is a _____
 - a. DNA marker
 - b. Mitochondrion marker
 - c. Nuclear gene
 - d. Chloroplast marker
9. Ethylene is a _____
 - a. Flowering hormone
 - b. Rooting hormone
 - c. Ripening hormone
 - d. Shooting hormone
10. GUS is a reporter gene of _____
 - a. Animal
 - b. plant
 - c. virus
 - d. bacteria

Part B

5 x 4 = 20

Answer ALL questions

Each answer should not exceed 200 words or one page

- 11.a. Write short note on Cosmid vector.
(Or)
- 11.b. Comment on Restriction endonucleases.
- 12.a. Give short account on DNA probes.
(Or)
- 12.b. Write the southern hybridization technique.
- 13.a. Write brief account on dot blot analysis.
(Or)
- 13.b. Comment on Isoelectric focusing.
- 14.a. List out the molecular markers and their applications.
(Or)
- 14.b. Write about Mitochondrial DNA transfer and its advantages.
- 15.a. Comment on male sterility.
(Or)
- 15.b. Write the strategies for avoiding gene silencing.

Part C

5 x 7 = 35

Answer ALL questions

Each answer should not exceed 600 words or three pages

- 16.a. Give an account on Ti – plasmid based vectors.
(Or)
- 16.b. With diagram, elaborate the components of Yeast artificial chromosome and its significance.
- 17.a. Write an account of cDNA library.
(Or)
- 17.b. Describe in detail PCR technique and its applications.
- 18.a. With suitable diagram explain Sanger's method of DNA sequencing method.
(Or)
- 18.b. Write the working principle of 2- Dimensional gel electrophoresis.
- 19.a. Describe in detail DNA microarray technique.
(Or)
- 19.b. Transgenic plants used as bioreactors – Justify the statement.
- 20.a. Elaborate in detail gene silencing techniques and significance.
(Or)
- 20.b. With suitable example, describe antisense RNA technology.