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(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2022 ONLY)

22UBY612

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : MAY-2025

B.Sc.-BOTANY **MAXIMUM MARKS: 50**

SEMESTER :VI **TIME : 3 HOURS**

PART - III

BIOTECHNOLOGY & GENETIC ENGINEERING

SECTION - A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS. **(K1)**

1. _____and _____ hormones required for a callus formation.
   a. Ethylene and Auxin, b. Auxin and cytokinin
   c. Auxin and Abscisic acid d. Cytokinin and gibberellin

2. Haploid plants can be obtained through_____.
   a. Anther culture c. Stem cell culture
   b. Pollen culture d. Callus culture

3. Which of the following vector is used for cloning 100kb size of DNA fragment?
   a. Plasmid vector c. Cosmid vector
   b. Phage vector d. Bacterial Artificial Chromosome

4. Southern blotting technique is used ……..
   a. To detect specific proteins in a sample c. To amplify DNA sequence
   b. To analyze RNA expression level d. To identify the specific DNA sequence in a sample

5. IPR stands for _____.
   a. International Patent Registration c. Intellectual Property Rights
   b. International Product Regulation d. Innovative Product Research

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES **(K2)**

6. Comment on totipotency.
7. Give a note on somatic embryogenesis.
8. Distinguish between exonucleases and endonucleases.
9. Highlight the role of selectable marker gene.
10. Comment on DNA vaccines.

SECTION – B (5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. **(K3)**

11. a) Describe the plant micropropagation with suitable illustration.

(OR)

b) Explain meristem culture and its applications.

(CONTD…….2)

12. a) Examine the process, challenges and importance of cryopreservation.

(OR)

b) Describe cybrids and explain their significant in plant improvement.

13. a) Analyze structure and function of cloning vector pBR 322.

(OR)

b) Comment on transposable elements and their significant role in genome.

14. a) Discuss about the western blotting technique and its uses.

(OR)

b) Highlight the significant role of reporter genes with suitable examples.

15. a) Explain the principles underlying DNA fingerprinting.

(OR)

b) Give a general account on DNA barcoding.

SECTION - C (5X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. K4 & K5

16. a) Write an account on sterilization techniques with suitable examples

(OR)

b) Give a detailed account on cell suspension culture and its applications.

17. a) Plant tissue culture cause epigenetic variation – Justify the statement.

(OR)

b) Analyse the somatic hybridization technique and highlight its application and limitation.

18. a) Describe the history and scope of molecular biology.

(OR)

b) Discuss in detail about the different types of vectors and its properties.

19. a) Write a detailed account on RAPD techniques and its applications.

(OR)

b) Give an account on methods of Agrobacterium mediated gene transformation in plants.

20. a) Enumerate the genetic modification of crop for disease resistance with suitable examples.

(OR)

b) Analyze the potential risks and safety guidelines for rDNA technology.

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