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(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2022 ONLY)

22PBY311

REG.NO. :

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

END-OF-SEMESTER EXAMINATIONS :NOVEMBER-2023

COURSE NAME: M.Sc.- BOTANY **MAXIMUM MARKS: 50**

SEMESTER: III **TIME : 3 HOURS**

PLANT BIOTECHNOLOGY AND NANOBIOLOGY

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS. (K1)

1. Circular DNA is found in _____.
   A. Viruses B. Bacteria, Chloroplast and mitochondria
   C. Chloroplast and mitochondria alone D. Chloroplast only
2. Which of the following act as chain terminator?
   A. Exogenous B. DNA C. Deoxynucleotides D. Dideoxynucleotides
3. In virus infected plants, the meristematic tissues in both apical and axillary buds are free from virus because_____.
   A. the dividing cells are virus resistant B. meristems have antiviral compounds
   C. the cell division of meristems is faster than the rate of viral multiplication
   D. viruses cannot multiply within meristem cells
4. Co-integrating transformation vectors must include a region of homology in_____.
   A**.** the vector plasmid B. Ti – plasmid
   C. between vector plasmid and Ti-plasmid D. None of these

5. Which metal is used with nanoparticles for antibiotic delivery?
   A. Gold B. Titanium C. Zinc D. Silver

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

6. Explain protein targeting.
7. Interpret Okazaki fragments
8. Define mericloning.
9. Illustrate GM Plants
10. Define Nanomesh.

SECTION – B (5 X 3 = 15 MARKS)

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

(K3)

11. a) Describe the concise account on protein targeting.

(OR)

b) Find out the applications of molecular markers.

12.a) Interpret the gene sequencing by Sanger's method. **.**

(OR)

b) List out the importance of ribosomes in protein synthesis.

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13.a) Apply the procedure for sterilization of explants in tissue culture.

(OR)

b) Describe the protocol of haploid production.

14.a) Compute the role of promoter and marker genes in plant transformation.

(OR)

b) Describe the resistance development in plants against insect and pest.

15.a) Compute the properties of carbon nanotubes.

(OR)

b) List out the applications of nanocapsules.

SECTION – C (5 X 5 = 25 MARKS)

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

(K4 (Or) K5)

16. a) Examine the chloroplast genome organization.

(OR)

b) Discuss the nuclear genome organization with suitable diagram**.**

17.a) Prove the DNA replication with suitable mechanism.

(OR)

b) Categorize the steps involved in PCR techniques and its applications.

18. a) Summarize the methods of protoplast isolation along with its culture.

(OR)

b) Outline the protocol for somatic hybridization and add notes on its advantages and limitations.

19.a) Analyze the mechanism of T-DNA transfer to plants.

(OR)

b) Evaluate the components of IPR and its importance.

20. a) Discuss the top down and bottom up approaches of nanomaterial synthesis.

(OR)

b) Analyze the various types of nanowire along with its applications.

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