STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2019 – 2020)

SUBJECT CODE: 19BT/MC/PB64

B. Sc. DEGREE EXAMINATION, APRIL 2022
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR – CORE
PAPER : PLANT BIOTECHNOLOGY
TIME : 3 HOURS MAX. MARKS: 100

SECTION A

Answer all the questions. (18 MARKS)

I. Choose the correct answer: (5 x 1 = 5)

1. The technique for specific identification of RNA molecules
   a) Southern blotting b) Northern blotting c) Western blotting d) Dot blotting
2. Formation of cell wall during protoplast regeneration requires
   a) Galactose b) Sucrose c) Maltose d) Lactose
3. The DNA sequencing technique by Sanger was using _____ method
   a) chemical reagent b) primer walking c) sequencing d) dideoxynucleotide
4. Most widely used detergent in PTC
   a) Tween 20 b) Ethyl alcohol c) Mercuric chloride d) Silver nitrate
5. In the expansion of RFLP, the 'L' stands for_____
   a) long b) length c) longevity d) lengthy

II. Fill in the blanks: (5 x 1 = 5)

6. The enzyme that breaks the phosphodiester bond of DNA is_____.
7. The ability of an individual cell to develop into a whole plant is referred as_____.
8. In PCR the denaturation takes places at_____^{o}C.
9. The wounded plant cells release _____ compounds which attracts *Agrobacterium.*
10. An example of chemical gene transfer method is _____.

III. State Whether True or False: **(3 x 1 = 3)**

11. The production of same clones is called somaclonal variations.
12. Biolistics is a combination of biological and ballistic techniques.
13. In the original technique of PCR, Klenow fragment of *E.coli* DNA polymerase was used.

IV. Match the following: (5 x 1 = 5)

14. Particle gun	Klercker
15. Plant tissue culture	Maheswari
16. Haploids	Nathans
17. Restriction enzyme	Sanford
18. Protoplast	Haberlandt

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V. Answer any SIX of the following. Each answer should not exceed 50 words: (6 x 3 = 18)

19. Ti plasmid
20. Synthetic seeds
21. Cybrids
22. PCR
23. Microinjection
24. Bioethics
25. DNA Ligase
26. PEG
27. BAC

SECTION – B

Answer any FOUR of the following. Each answers not exceeding 200 words. (4 x 6 = 24)

28. Enumerate the steps involved in haploid production.
29. Discuss plant nuclear genome organization.
30. Explain the different types of Restriction Endonucleases.
31. Explain the construction of YAC.
32. Illustrate RAPD.
33. Explain the gene transfer mechanism using particle bombardment technique.

SECTION – C

Answer any TWO of the following. Each answers not exceeding 1000 words. (2 x 20 = 40)

34. Give a detailed account on somatic hybridization and the steps involved in identification and selection of hybrid cells.
35. Summarise the structure and function of chloroplast genome.
36. Describe the procedure for obtaining insect resistance plant. Add a note on edible vaccines.
37. Elaborate *Agrobacterium* mediated gene transfer mechanism.

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