

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
(For candidates admitted from the academic year 2004-2005 & thereafter)

**SUBJECT CODE: BT/MC/AB64**

**B.Sc. DEGREE EXAMINATION, APRIL 2009**  
**BRANCH V(a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**  
**SIXTH SEMESTER**

**COURSE : MAJOR – CORE**

**PAPER : APPLIED BIOTECHNOLOGY**

**TIME : 3 HOURS**

**MAX. MARKS: 100**

**SECTION –A**

**ANSWER ALL QUESTIONS**

**( 18 x 1 = 18 )**

**I. CHOOSE THE CORRECT ANSWER:**

1. Antibodies are protein molecules produced by a specialized group of cells called
  - a. Plasma cells
  - b. Epithelial cells
  - c. Red blood corpuscles
  - d. white blood corpuscles.
2. The direct delivery of genes into the cells of a particular tissue is referred to as
  - a. in vivo gene therapy
  - b. ex vivo gene therapy
  - c. Somatic cell gene therapy
  - d. Germ cell gene therapy
3. The ability of the callus cells to differentiate into a plant organ or a whole plant is regarded as
  - a. differentiation
  - b. redifferentiation
  - c. de differentiation
  - d. morphogenesis.
4. Callus cells are
  - a. collenchymatous
  - b. sclerenchymatous
  - c. parenchymatous
  - d. parenchymatous and sclerenchymatous
5. The predominant microorganism for bioremediation is
  - a. Pseudomonas
  - b. Nocardia
  - c. Mycobacterium
  - d. Alcaligenes

**II. FILL IN THE BLANKS**

6. The production of variant clones with new characteristics is called \_\_\_\_\_.
7. Haploid production occurs through anther or pollen culture and they are referred to as \_\_\_\_\_.
8. The production of monoclonal antibodies by the hybrid cells is referred to as \_\_\_\_\_.
9. The process of inserting genes into cells to treat diseases called \_\_\_\_\_.
10. The target gene responsible for the development of transgenic organisms is called \_\_\_\_\_.

**III. MATCH THE FOLLOWING**

- |                                  |   |                            |
|----------------------------------|---|----------------------------|
| 11. Low auxin and Low cytokinin  | - | Root formation from callus |
| 12. Low auxin and high cytokinin | - | Callus formation           |
| 13. High auxin and Low cytokinin | - | Shoot organogenesis        |

**IV. STATE WHETHER TRUE OR FALSE:**

14. The chromosome number in the somatic hybrids is generally more than the total number of both of the parental protoplasts.
15. Vector mediated gene transfer is carried out either by Agrobacterium mediated transformation or by use of plant viruses as vectors.
16. The media used in Tissue culture is solid only.
17. A temperature in the range of 22 – 28<sup>0</sup>C is suitable for callus formation.
18. The diazotrophic microorganisms are the symbiotic nitrogen fixers that serve as biofertilizers.

**V. ANSWER ANY SIX OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 50 WORDS: (6 x 3 = 18)**

19. Cybrid.
20. Limitations of Biofertilizers.
21. Interferons.
22. Gene cloning
23. Vaccines.
24. Xenobiotics.
25. Gene Therapy.
26. Transgenic Plants.
27. Androgenesis.

**SECTION- B****ANSWER ANY FOUR OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 200 WORDS: (4 x 6 = 24)**

28. What are the major types of media used in Tissue Culture?
29. Describe the nature and types of antigens and antibody.
30. How ethanol is prepared by using microorganisms?
31. Write on natural and acquired immunity.
32. What are the applications of Tissue culture in horticulture and pharmaceutical industry?
33. Give an account of in vitro fertilization and embryo transfer.

**SECTION -C****ANSWER ANY TWO OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 1000 WORDS: (2x 20 = 40)**

34. What is explant? How will you induce plantlet from protoplast?
35. Describe the production of Monoclonal Antibodies.
36. Give an account of microbial degradation of xenobiotics.
37. Describe the biotechnology of herbicide resistance and Insect resistance in crop plants.

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