

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2008 – 2009 & thereafter)

SUBJECT CODE: BT/MC/AB64

B.Sc. DEGREE EXAMINATION, APRIL 2012
BRANCH V(a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

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

SECTION – A (36 Marks)

ANSWER ALL QUESTIONS

I. CHOOSE THE CORRECT ANSWER (5 x 1 = 5)

1. A disorganised, proliferated mass of actively dividing cells is called
a. Protoplast b. Explant c. Callus d. Tissue
2. Gene mutation can be induced artificially using
a. X-rays b. – rays c. Colchicine d. All the above
3. Enzymes that break down starch into sugars are called
a. Cellulases b. Pectinases c. Amylases d. ligninases
4. The organs that can be induced in plant tissue culture are
a. Roots b. Shoots c. Leaves d. All the above
5. The bacteria involved in the production of biogas
a. Diazotrophs b. Methanogens c. Alcaligens d. All the above

II. FILL IN THE BLANKS (5 x 1 = 5)

6. The crossing of two genetically different parents is called
7. MAS is expanded as
8. The ability of a cell to regenerate into a whole plant is called
9. Plants with resistance to glyphosate are resistant plants.
10. Vitamin B₁₂ is also known as

III. STATE WHETHER TRUE OR FALSE. (4 x 1 = 4)

11. Shoot tip culture is also known as micropropagation
12. The principle of cross protection is used to produce virus resistant plants
13. Haploid plants are produced by protoplast culture
14. Chromosomal rearrangement is an important source of somaclonal variation

IV. MATCH THE FOLLOWING.**(4 x 1 = 4)**

- | | |
|-----------------------------|-------------------------------|
| 15. Hydrogen gas production | <i>Lactococcus lactis</i> |
| 16. Blue cheese | <i>Halobacterium halobium</i> |
| 17. Hydrocarbon production | <i>Penicillium roqueforti</i> |
| 18. Cheddar cheese | <i>Botryococcus lactis</i> |

V. WRITE SHORT NOTES ON ANY SIX EACH IN ABOUT 50 WORDS.**(6 x 3 = 18)**

19. Anther and pollen culture
20. MAB
21. Recombinant vaccine
22. Bioreactor
23. Petroplants
24. Back cross method
25. Applications of tissue culture in horticulture
26. Induced mutations
27. Artificial seeds

SECTION – B

ANSWER ANY FOUR OF THE FOLLOWING IN ABOUT 200 WORDS EACH. ALL ANSWER CARRY EQUAL MARKS. DRAW DIAGRAM WHEREVER NECESSARY.

(4 x 6 = 24)

28. Write a note on the selection of hybrid cells.
29. Give an account on methods involved in protoplast isolation.
30. Draw a neat sketch of the fermentor and mark its parts.
31. What are biofertilizers? List their advantages.
32. Write an account of biogas production.
33. Define culture media. Add a note on the various components in culture media.

SECTION – C

ANSWER ANY TWO OF THE FOLLOWING IN ABOUT 1000 WORDS EACH. ALL ANSWER CARRY EQUAL MARKS. DRAW DIAGRAM WHEREVER NECESSARY.

(2 x 20 = 40)

34. What are transgenic plants? Add a note on the development of insect resistant plants
35. Write short notes on a) Somaclonal variation b) Organogenesis c) Edible vaccines d) Model plant systems.
36. Give an account of the various steps involved in upstream and downstream processing.
37. Write an account on a) Mutation and its types b) Hybridisation techniques
