

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2011 – 2012)

SUBJECT CODE:11 BT/MC/AB64

B.Sc. DEGREE EXAMINATION, APRIL 2014
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. The Phenomenon of mature cells reverting to meristematic state to produce callus is called
 - a) Differentiation
 - b) Redifferentiation
 - c) Dedifferentiation
 - d) Disdifferentiation.
2. From the following plants which plant is a petio plant.
 - a) *Euphorbia lathyris*
 - b) *Euphorbia hirta*
 - c) *Euphorbia heterophylla*
 - d) *Euphorbia sanctum.*
3. Whey is a by product of
 - a) Dairy industry
 - b) Bakery
 - c) Sugar industry
 - d) Alcohol industry.
4. Male sterility can be induced artificially by spraying
 - a) Naphthelene acetic acid
 - b) Gibberellin
 - c) Ethylene
 - d) Mercuric chloride.
5. To control viral infections in plants the most appropriate method is
 - a) Control weeds that serve as alternate hosts.
 - b) Use of seeds that are bacteria free.
 - c) Control insects that spread bacterial diseases.
 - d) Use cultivars that possess bacterial resistance.

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

6. *Calatropis procera* secretes latex which is very rich in _____.
7. _____ is the most frequently used agar to solidify the culture media.
8. To tackle the problem of weeds modern agriculture has developed a wide range of weedkillers which are collectively referred to as _____.
9. Removal of anthers before they dehisce and shed their pollens from bisexual flowers of female parent is known as _____.
10. A fermenter usually refers to the containment system for the cultivation of _____.

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

11. Hybridization can be defined as the method of producing new crop varieties by crossing two genetically different parents.
12. Biogas production from biomas is an anaerobic process.
13. Glyphosate is less toxic to animals and is rapidly degraded by microorganisms.
14. Protoplasts of different species can be fused to generate a hybrid and this process is referred to as somatic hybridization.

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

- | | |
|--------------------------------|------------------------|
| 15. Molasses | a. Terpenoids |
| 16. <i>Euphorbia tirucalli</i> | b. Leaf |
| 17. Explant | c. Mucosal immunity |
| 18. Edible vaccine | d. Fermentation media. |

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

19. Cybrid
20. Totipotency
21. Mutation breeding
22. Transgenic plants
23. Petroplants
24. Photobioreactors
25. Uses of Amylase
26. Organogenesis
27. Gobar gas

SECTION – B

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

(4 x 6 = 24)

28. What are the applications of Tissue culture in Pharmaceutical industry?
29. What is Somaclonal variation? Add a note on the applications of Somaclonal variations.
30. Describe the structure of Gobar gas plant.
31. Draw and describe the structure of a typical bioreactor.
32. Discuss the different steps involved in hybridization procedure for production of new variety.
33. Give an account of the steps involved in the production of cheese.

SECTION – C

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

(2 x 20 = 40)

34. Write an essay on Biofertilizers.
35. Discuss the media used in industrial fermentation.
36. Describe the Pure-line selection and clonal selection in detail.
37. Describe the procedure for anther culture and add a note on its applications.
