

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

SUBJECT CODE: 11 BT/MC/AB64

B.Sc. DEGREE EXAMINATION, APRIL 2017  
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

I. CHOOSE THE CORRECT ANSWER

(5 x 1 = 5)

1. Cybrids contain
  - a. nuclei of both parents and cytoplasm of one parent
  - b. cytoplasm of both parents and nucleus of one parent
  - c. cytoplasm and nuclei of both the parents
  - d. cytoplasm of both parents but nucleus of none
2. The objective of selfing is to
  - a. avoid cross pollination
  - b. ensure self pollination
  - c. achieve 100% homozygosity
  - d. all the above
3. Transgenic plants are produced by using Ti plasmid from
  - a. *Agrobacterium tumefaciens*
  - b. *E. coli*
  - c. Bacteriophage
  - d. *Agrobacterium varians*
4. The molecular markers are
  - a. co-factors
  - b. co-enzymes
  - c. isozymes
  - d. nucleic acids
5. Beer is prepared from
  - a. fermented fruit juice
  - b. fermented rice water
  - c. germinated wheat grain
  - d. germinated barley grain

II. FILL IN THE BLANKS

(5 x 1 = 5)

6. Variations observed during tissue culture of some plants are known as-----
7. A cross between two species of the same genus is called ----- hybridization.
8. Two bacteria widely used in genetic engineering are ----- and -----.
9. -----gained popularity in the last decade as a biodiesel plant.
10. The various processes used for the final recovery of useful products from fermentation together constitute -----.

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

11. Virus free plants can be obtained through shoot tip culture.
12. Mutation breeding has been employed to improve various quantitative characters, including yield.
13. A transgenic organism contains the genes from unrelated organisms.
14. Impeller is used for introducing air into the medium in the fermenter.

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

- |                             |                                |
|-----------------------------|--------------------------------|
| 15. Clonal selection        | a. Cry proteins                |
| 16. Insect resistance       | b. flocculation                |
| 17. Hydrocarbons            | c. asexual reproduction        |
| 18. Separation of particles | d. <i>Botryococcus braunii</i> |

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

19. Define totipotency.
20. What is organogenesis?
21. Write short notes on MAS.
22. Define mutation breeding.
23. What are edible vaccines?
24. Cite the significance of transgenic plants.
25. What are petroplants?
26. Fermentation.
27. Give the importance of Vitamin B<sub>12</sub>.

**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. Write briefly about production of haploid plants through anther culture.
29. Describe the procedure for pure line selection and add a note on its merits and demerits.
30. Give a brief account on the various categories of biofertilizers.
31. Explain the various steps involved in biogas production.
32. Describe the process of bio-ethanol production.
33. Explain the methodology in cheese production.

**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 a detailed account on protoplast isolation and somatic hybridization. Add a note on its importance.
35. What is hybridization? Explain the various steps involved in hybridization.
36. Write in detail on herbicide and viral resistance in transgenic plants.
37. Discuss briefly on the stages involved in downstream processing.

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