

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

SUBJECT CODE: BT/MC/AB64

B.Sc. DEGREE EXAMINATION, APRIL 2011  
BRANCH V(a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY  
SIXTH SEMESTER

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

SECTION – A (18 x 1 = 18 Marks)

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

- Hormone that induce shoot in PTC is  
a. Auxin    b. Cytokinin    c. Gibberellins    d. Ethylene
- Which one of the following mutagen is used in seed treatment in general?  
a. UV    b. Acrydine    c. Gamma    d. Colchicine
- Find out the odd one from the following.  
a. *Rhizobium*    b. *Azospirillum*    c. *Azotobacter*  
d. Phosphobacteria
- Microbe used in ethanol production is  
a. *E. coli*    b. *Saccharomyces*    c. *Bacillus*    d. *Spirullina*
- Raw material used for amylase production is of  
a. Cellulose    b. Lignin    c. Starch    d. Glucose

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

- Haploids are produced from ----- cultures.
- Removal of anther from bisexual flowers is known as -----.
- Marker enzyme used in the development of fungal resistance in crop plant is -----.
- Petroplant used in large scale production of biodiesel is -----.
- Softness of bread is due to ----- production of yeast.

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

- Explants must have cambial cells for multiplications.
- Inbreds are the product of continuous vegetative reproduction.
- Formulation of media for fermentation process is known as upstream process.
- Botrydiococcus* are commonly used in the production of algal hydrocarbon.

**IV. MATCH THE FOLLOWING.****(4 X 1 = 4 MARKS)**

- |  |                               |
|--|-------------------------------|
| 15. <i>Lactobacillus</i>               | (i) Beer                      |
| 16. <i>Saccharomyces</i>               | (ii) Cheese                   |
| 17. <i>Bacillus amyloliquifaeciens</i> | (iii) Vitamin B <sub>12</sub> |
| 18. <i>Citrobacter freundii</i>        | (iv) Amylase                  |

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

19. Moist heat sterilization
20. Whites medium
21. Continuous culture technique
22. RAPD
23. Clone
24. Diazotrophs
25. Gobar gas
26. Down stream process
27. Baffles and sparger

**SECTION – B****ANSWER ANY FOUR OF THE FOLLOWING EACH IN ABOUT 200 WORDS.****(4 x 6 = 24 Marks)**

28. Write notes on MS media composition. Give the role of each mineral ions.
29. Describe the procedure of pure line selection in crop plants.
30. Briefly explain edible vaccines.
31. Illustrate and explain about the production of biogas.
32. How are beer produced large scale in industries.
33. Write notes on the protocol and applications of root culture.

**SECTION – C****ANSWER ANY TWO OF THE FOLLOWING EACH IN ABOUT 1000 WORDS.****(2 x 20 = 40 Marks)**

34. Write details on somatic hybridization with suitable illustrations.
35. Describe the hybridization technique followed in crop plants.
36. Write in detail about the transgenic plants for herbicide and insect resistance.
37. Explain the procedure for cheese production. Add notes on its different types.

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**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
**(For candidates admitted from the academic year 2008 – 09& thereafter)**  
**SUBJECT CODE: BT/MC/AE44**

**B.Sc. DEGREE EXAMINATION, APRIL 2011**

**BRANCH V(a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**  
**FOURTH SEMESTER**

**COURSE : MAJOR – CORE**  
**PAPER : ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS**  
**TIME : 3 HOURS** **MAX. MARKS: 100**

**SECTION-A**

**A. ANSWER THE FOLLOWING** **(1X18=18 )**

**I. Choose the correct Answer**

1. Exarch xylem is seen in  
a. Stem                      b. Leaves                      c. Root
2. Suberin is present in  
a. Endodermis      b. Epidermis                      c. Pericycle
3. Stone cells are  
a. Astrosclereid      b. Brachysclereid                      c. Osteosclereid
4. The simplest and Primitive stele is  
a. Haplostele      b. Siphonosteles                      c. Protosteles
5. The wood Parenchyma cells that develop balloon like Protrusions into the tracheary elements are.  
a. Tyloses                      b. Phellem                      c. Lenticels

**II. Fill in the blanks:**

6. The Lateral roots in dicots arises from\_\_\_\_\_.
7. In this type of vascular bundles, the xylem and phloem lie in the same radius\_\_\_\_\_.
8. In Leaves beneath the upper Epidermis \_\_\_\_\_ cells are seen.
9. \_\_\_\_\_ occurs in the form of thin strips of cells between xylem & phloem in the vascular bundles of stems.
10. The vascular bundles remain separated, due to the presence of long strips of Parenchymatous tissues such strips are called\_\_\_\_\_.

**III. State true or false**

11. Hypodermis is present just below the Epidermis.
12. Collenchyma is a dead tissue.
13. Pith is absent in Dicot root but present in monocot roots.
14. Primary xylem is composed of Protoxylem and Meta xylem.

**IV. Match the following**

- |     |                           |   |                       |
|-----|---------------------------|---|-----------------------|
| 15. | Leaf Abscission           | - | Callus                |
| 16. | Haploid Dyad cell         | - | ABA                   |
| 17. | Wound Healing             | - | Monosporic embryosac. |
| 18. | Single uhalazal megaspore | - | Bisporic embryosac    |

**V. ANSWER ANY SIX FROM THE FOLLOWING :****(6X3=18)**

19. Describe a Leaf trace.
20. What is a Velamen tissue?
21. What is Epiblema.
22. Describe a Polygonum type of Embryosac.
23. Write notes on Tapetum.
24. Write about Generative cell.
25. Write about Egg apparatus.
26. What is Chalazogamy.
27. What is an Endosperm?

**SECTION-B**

**ANSWER ANY FOUR OF THE FOLLOWING IN ABOUT 200 WORDS. (4X6=24)**  
**DRAW DIAGRAMS WHEREVER NECESSARY.**

28. Describe Apomixis.
29. Write notes on Nuclear Endosperm.
30. Explain a Bisporic embryosac.
31. Write about the Nodal Anatomy.
32. Describe the internal Structure of a centric Monocot Leaf.
33. Write notes on Leaf Abscission.

**SECTION-C**

**ANSWER ANY TWO OF THE FOLLOWING IN ABOUT 1000 WORDS. (2X20=40)**  
**DRAW DIAGRAMS WHEREVER NECESSARY.**

34. Write an essay on Anomalous Secondary growth, giving any one example from a Dicot stem.
35. Write an essay on Secondary xylem.
36. Explain the structure of a mature Dicot embryo and also explain double fertilization.
37. Explain secondary growth in normal Dicot Root.

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