Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore-641 043

Master's Degree Examination-November 2017
III SEMESTER

Class: II PG Max. Marks: 60
Major: Biotechnology Time: 3 Hours

12MBTC15 Plant Biotechnology

Part-A 10X 1/2= 5

Answer the following

Choose the correct Answer:

1. Photosynthetic pigments are located in
   a. Stroma b. Grana c. Cytoplasm d. Thylakoids

2. In chloroplast photodynamic changes is prevented by
   a. Chlorophyll b. Carotenoids c. Phycobillins d. Anthocyanins

3. The release of NH_4^+ ion in the soil through the decomposition of organic matter by microbial decay is called
   a. Nitrification b. Biological nitrogen fixation
   c. Ammonification d. Denitrification

4. In _____ germination, the epicotyls elongates and brings the cotyledons above the ground
   a. Epigeal b.hypogeal c. Aereal d. Epiphyteal

5. Restriction fragment length polymorphisms (RFLPs) are
   a. used to determine the position of restriction sites in a genome
   b. are used in physical mapping
   c. are used in genetic mapping
   d. usually occur as multiple (more than 2) alleles in a genome

6. Transposon tagging is used to
   a. Isolate a gene b. Isolate a transposon
   c. Study the sequence of genes d. Study the characters coded by the gene

7. Which vector is mostly used in crop improvement?
   a. Plasmid b. Cosmid c. Phasmid d. Agrobacterium

8. Transfer of T DNA from Ti plasmid into plant cells is mediated by
   a.mob genes b.vir genes c. nif genes d. octapine genes

9. Artificial seeds are
   a. seeds produced in laboratory conditions b. seeds encapsulated in a gel
   c. somatic embryos encapsulated in a gel d. zygotic embryos encapsulated in a gel

10. Callus is
   a. tissue that forms embryo b. an insoluble carbohydrate
   c. tissue that grows to form embryoid
   d. an unorganised actively dividing mass of cells maintained in culture

Part-B

5x4=20

Answer ALL Questions

Answer should not exceed 200 words or on one page

11. a. Elaborate on RNA editing.

    b. Explain the role of photorespiration in plants.

12. a. Write the regulation of nif genes of nitrogen fixation.

    b. Explain the stages of seed germination.

13. a. Write a note on FISH.

    b. Enlist the types of tagging.

14. a. How reporter genes are used in plant vectors.

    b. Outline chloroplast transformation.

15. a. Explain artificial seed production.

    b. Describe plant embryogenesis.

Part-C

5x7=3

Answer ALL Questions

Answer should not exceed 600 words or on one page

16. a. Discuss C3 pathway

    b. Describe the organization of mitochondrial genome.

17. a. Elaborate on biotic and abiotic plant stress response.

    b. What are plant hormones? Explain about the biosynthesis of auxins.

18. a. Elaborate on molecular markers RFLP and RAPD.

    b. Write a detail on DNA finger printing.

19. a. Explain Ti plasmids.

    b. Describe gene silencing in transgenic plants.

20. a. Give an account on different types of *in vitro* cultures.

    b. Explain in detail about the production of secondary metabolites in cell cultures.

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