Avinashilingam Institute for Home Science and Higher education for Women
(Deemed to be University) Coimbatore-641043

Master's Degree Examination-November 2018
III Semester

Class: II PG
Major: Biotechnology

Time: 3 Hours
Maximum Marks: 60

17MBTC15 Plant Biotechnology

Part-A

10X1/2=5 Marks

Choose the Correct answer

1. Light is necessary in the process of photosynthesis to
   a) Split carbon dioxide
   b) Produce ATP and a reducing substance
   c) Release energy
   d) combine carbon dioxide and water

2. The site of dark reaction of photosynthesis is
   a) Grana b) Stroma c) thylakoids d) Both (a) and (b)

3. Plants cannot absorb molecular N_2 in the atmosphere
   a) N_2 has double bonds making it highly stable
   b) Abundance in the atmosphere inhibits absorption
   c) N_2 has triple bonds making it highly stable
   d) None of these

4. Auxin transport is
   a) Polar b) Nonpolar c)Symplast d) apoplast

5. Methods used to identify locus of gene and distance between genes are called as
   a) Gene linkage b) Gene pool c) Gene Mapping d) Gene localization

6. Molecular Markers include
   a) RFLP
   b) RAPD
   c) AFLP
   d) All of these

7. Golden rice is genetically modified crop plant where the incorporated genes are meant for the biosynthesis of
   a) Vitamin A b) Vitamin C c) Vitamin B d) Beta-carotene

8. The removal or replacement of tumor causing genes from Ti plasmid is termed as
   a) gene replacement b) disarming c) gene displacement d) Insertional inactivation

9. Synthetic seed is produced by encapsulating somatic embryo with
   a) Sodium Chloride b) Sodium alginate c)Sodium nitrate d) Sodium acetate

10. Which of the following plant cell will show totipotency
    a) Xylem vessels b) Sieve tube c) Meristem d) Cork cells

Part- B **5×4=20**

Answer the following

Answer should not exceed 200 words or one page

11.a Briefly discuss the structure of chloroplast

(Or)

11.b Comment on CAM Photosynthesis

12.a. Explain root nodule symbiosis in nitrogen fixation

(Or)

12.b. Describe the functions of Abscisic acid

13. a. Give short notes on Fluorescence *in situ* hybridization technique

(Or)

13.b. Briefly discuss about chromosome landing

14.a.List the reporter genes and selectable marker genes used for plant transformation

(Or)

14.b. What are viral vectors? Discuss its types.

15.a. Give an account on somatic embryogenesis

(Or)

15.b. Describe the significance of embryo rescue

Part-C **5×7 = 35**

Answer the following

Answer should not exceed 600 words or three pages

16.a. Explain Hatch-slack pathway in detail

(Or)

16.b. Describe electron transport chain in detail

17.a. Explain ethylene biosynthetic pathway in detail

(Or)

17.b.Discuss on the biotic and abiotic stress response in plants

18.a. Explain Restriction Fragment Length Polymorphism technique and its applications

(Or)

18.b. Describe in detail about DNA fingerprinting technique. Add a note on its applications

19.a. Explain *Agrobacterium*-mediated transformation for the production of transgenic plants

(Or)

19. b. Describe on Biolistic method of gene transformation

20.a. Explain on methods involved in the production of plant secondary metabolites

(Or)

20.b. Describe the production of haploid plants in detail