

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

Master's Degree Examination- November 2017

III-Semester

**Class : II PG
Major : Biochemistry**

**Time: 3 hours
Max. Marks: 60**

12MBCC15 Physiology Biochemistry and Biotechnology of Plants

Part A

10 x 1/2 = 5

Choose the correct answer

1. Photosynthesis is a process in which-----
 - a. CO₂ is reduced to carbohydrates
 - b. NADH is reduced to NAD⁺
 - c. ATP is generated
 - d. Oxidative phosphorylation occurs
2. Kranz anatomy is typical of -----
 - a. C₃ Plants
 - b. C₄ plants
 - c. C₂ plants
 - d. CAM plants
3. Phytochrome is involved in-----
 - a. Photoperiodism
 - b. Phototropism
 - c. Photosynthesis
 - d. photorespiration
4. One important trait that the lipids share is-----
 - a. Polymers
 - b. Hydrophilic
 - c. Hydrophobic
 - d. Triacyl glycerol
5. -----is a symbiotic nitrogen fixing bacteria
 - a. Rhizobium
 - b. Azotobacter
 - c. Clostridium
 - d. Nitrosomonas
6. Seed develops from -----
 - a. Ovary
 - b. Embryo
 - c. Ovule
 - d. Embryo sac
7. Restriction Fragment length Polymorphism (RFLPs) are used -----
 - a. to determine position of restriction sites in a genome
 - b. in physical mapping
 - c. in genetic mapping
 - d. usually occur as multiple alleles in genomes
8. The first crop plant genome sequence
 - a. maize
 - b. rice
 - c. Wheat
 - d. Barley
9. Cellular totipotency is demonstrated by
 - a. only gymnosperms
 - b. all plant cells
 - c. all eukaryotic cells
 - d. only bacterial cells
10. The most common solidifying agent used in micropropagation is
 - a. agar
 - b. dextran
 - c. mannan
 - d. all of these

Part B

5 x 4 = 20

Answer ALL questions

Answer should not exceed 200 words or one page

- 11.a. Differentiate Photosystem I and Photosystem II?
(Or)
- 11.b. Comment on chemiosmotic theory and ATP synthesis ?
- 12.a. Classify lipids and list out their functions?
(Or)
- 12.b. Explain the role of secondary metabolites in plants?
- 13.a. What is nitrogen cascade and explain its effect on environment?
(Or)
- 13.b. Write down the importance of floral development?
- 14.a. Narrate the importance of Physical maps and Genetic maps ?
(Or)
- 14.b. How is RFLP different from RAPD?
- 15.a. Explain in brief about protoplast fusion?
(Or)
- 15.b. List out the steps involved in development of golden rice?

Part C

5 x 7 = 35

Answer ALL questions

Answer should not exceed 600 words or three pages

- 16.a. Discuss on photosynthetic apparatus and pigments of photosynthesis?
(Or)
- 16.b. Describe the complexes involved in ETC and its importance in plants?
- 17.a. Give an account on plant polysaccharides?
(Or)
- 17.b. What are phytochromes? Explain its functions?
- 18.a. Explain the importance of nitrogen fixation?
(Or)
- 18.b. List out the biochemical changes involved in seed germination?
- 19.a. Discuss on the strategy used for rice genome sequencing ?
(Or)
- 19.b. What is DNA Fingerprinting? Enumerate on the steps involved and give its functions?
- 20.a. Give a detailed note on Micropropagation and its applications?
(Or)
- 20.b. Describe the methods of gene transformation in plants?
