(6 pages) **Reg. No. :** .....

Code No. : 6876 **Sub. Code : KBOM 41**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Fourth Semester

Botany

PLANT PHYSIOLOGY AND METABOLISM

(For those who joined in July 2016 and afterwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The water which is readily available to plants for absorption by roots

   (a) Gravitational water

   (b) Capillary water

   (c) Rain water

   (d) Hygroscopic water

2. Which one of the following is not a micronutrient?

   (a) Magnesium (b) Molybdenum

   (c) Boron (d) Zinc

3. The photosynthetic pigments are located in the part

   (a) stroma (b) grana

   (c) cytoplasm (d) thylakoids

4. The photosynthesis process, PS II absorbs energy at

   (a) 700 nm (b) 870 nm

   (c) 680 nm (d) 780 nm

5. The site of glycolysis in a cell is

   (a) chloroplast (b) nucleus

   (c) cytoplasm (d) mitochondria

6. Plant respiration is

   (a) Anabolic process

   (b) Exothermic process

   (c) Endothermic process

   (d) Endergonic process

Nesamony Memorial Christian College, Marthandam

7. The gibberellins are chemically known as

(a) phenolic derivatives

(b) terpenoid derivatives

(c) adenine derivatives

(d) alkaloid derivatives

8. The seed dormancy allows the plants to

(a) overcome unfavourable climate conditions

(b) reduce viability

(c) develop health seeds

(d) prevent deterioration of seeds

9. Plant stress can be divided into

(a) two categories (b) three categories

(c) four categories (d) five categories

10. The heat-shock proteins was first identified in the year

(a) 1962 (b) 1982

(c) 1973 (d) 1985

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short notes on importance of micronutrients.

Or

(b) Briefly explain the starch-sugar interconversion theory.

12. (a) What is a photosynthetic pigment? Explain it.

Or

(b) Explain the Z scheme in photosynthesis.

13. (a) Give a concise account on plant respiration.

Or

(b) Describe the beta oxidation.

14. (a) Enumerate the sigmoid growth rate.

Or

(b) Define the growth retardants.

Nesamony Memorial Christian College, Marthandam

15. (a) Write notes on stress physiology.

Or

(b) Briefly explain the heat shock proteins.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write an essay on mechanism of water uptake in plants.

Or

(b) Give a detailed account on translocation of organic solutes.

17. (a) Explain the various steps involved in photosynthesis.

Or

(b) Enumerate the photo phosphorylation and mechanism of ATP synthesis.

18. (a) Give a detailed account on biological nitrogen fixation.

Or

(b) Explain the steps involved in cyanide resistant pathway.

19. (a) Give an account of photoperiodism.

Or

(b) Write an essay on physiology of seed germination.

20. (a) Narrate the stress resistance mechanism.

Or

(b) Enumerate the classification of stress physiology.

———————

Nesamony Memorial Christian College, Marthandam