

(6 pages)

Reg. No. :

Code No. : 6415

Sub. Code : HBOM 41

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2017.

Fourth Semester

Botany

PLANT PHYSIOLOGY

(For those who joined in July 2012 – 2015)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Water potential is denoted by

- (a) ψ_w (b) ϕ_w
(c) X_w (d) None of the above

2. The stomata open when guard cells become

- (a) Turgid (b) Flaccid
(c) Plasmolysed (d) Both (b) and (c)

3. Calvin cycle is also known as

- (a) C₂ cycle (b) C₃ cycle
(c) C₄ cycle (d) PCR pathway

4. Rate of photosynthesis is greater in

- (a) Red light (b) Blue light
(c) Green light (d) White light

5. The enzyme nitrogenase is extremely sensitive to

- (a) H₂ (b) O₂
(c) N (d) R

6. Pentose phosphate pathway is also known as

- (a) Warburg – Dickens pathway
(b) Direct oxidation pathway
(c) Hexose monophosphate shunt
(d) All the above

7. The primary physiological effect of auxin in plant is

- (a) Elongation of internodes
(b) Cell division
(c) Elongation of cells in shoot
(d) Fruit ripening

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8. Native phytochrome is a soluble protein which is a /
(a) Homodimer (b) Heterodimer
(c) Homotetramer (d) Heterotetramer
9. External symptoms of salt injury to plants are
(a) Leaf edge burns
(b) Necrotic spots on leaves
(c) Chlorophyll bleach
(d) All the above
10. Name the harmful radiation emitted from sun
(a) UV radiation (b) RV radiation
(c) SV radiation (d) TV radiation

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 water potential.

Or

- (b) Explain the mechanism of stomatal movements.

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12. (a) What is photosynthesis? Explain the evolution of photosynthetic apparatus.

Or

- (b) Write short notes on C₄ cycle.

13. (a) Explain the terminal oxidation of reduced coenzymes.

Or

- (b) Briefly explain the nitrogen fixing organisms.

14. (a) Describe the measurement of growth in plants.

Or

- (b) Give a concise note on morphactins.

15. (a) What is stress physiology? Explain its types.

Or

- (b) Describe the heavy metal stress in plants.

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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 absorption and transport of water.

Or

- (b) Give a detailed account on concept of Apoplast and symplast.

17. (a) Write elaborate note on light harvesting complexes.

Or

- (b) Explain the mechanism of CAM pathway.

18. (a) Describe the mechanism of glycolysis.

Or

- (b) Explain the mechanism of biological nitrogen fixation.

19. (a) Write an essay on physiological role and mechanism of action of auxin.

Or

- (b) Describe physiology of flowering.

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20. (a) Give an account of salt stress in plants.

Or

- (b) Give an elaborate account on stress resistance mechanism.

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