

(6 pages)

Reg. No. :

Code No. : 9415

Sub. Code : HBOM 41

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2015.

Fourth Semester

Botany

Paper X – PLANT PHYSIOLOGY

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer.

1. The apparent free space of the roots and xylem vessels constitute the
(a) Symplast (b) Tran membrane
(c) Apoplast (d) Protoplast
2. The nutrients N, P, K are
(a) Macro nutrients (b) Rare elements
(c) Micro elements (d) Micro nutrients

3. Non-cyclic electron transport is also known as
(a) Q-scheme (b) L-scheme
(c) H-scheme (d) Z-scheme
4. Calvin cycle is otherwise called
(a) C₃ cycle
(b) C₄ cycle
(c) Electron transport chain
(d) Glycolysis
5. Number of ATP formed during respiration
(a) 28 (b) 18
(c) 48 (d) 38
6. The algal N fixer is
(a) Nostoc (b) Ulva
(c) Spirulina (d) Chlorella
7. Growth retardation is due to the absence of
(a) Sugars (b) Phosphorus
(c) Proteins (d) Minerals
8. Ethylene is a hormone related to
(a) Root initiation (b) Vernalization
(c) Senescence (d) Flower induction

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9. The stress caused due to infra-red light is

- (a) Radiation (b) Water
(c) Salinity (d) Metals

10. Halophytic plants are adopted to

- (a) Radiation (b) Heavy metals
(c) Drought (d) Salinity

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write short notes on water potential.

Or

(b) What are trace elements? Explain its importance in plant systems.

12. (a) Enumerate the role of light in photosynthesis.

Or

(b) Give a brief account of cyclic phosphorylation.

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13. (a) Mention the enzymes involved in TCA cycle.

Or

(b) Write short notes on nitrate reduction.

14. (a) Write about growth retarding hormones.

Or

(b) What are phytohormones? Brief its physiological role.

15. (a) Write notes on radiation stress.

Or

(b) Name the heavy metals which cause stress in plants.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Draw and explain the concept of apoplast and symplast pathways of diffusion of water.

Or

(b) Write an essay on types of transpiration and various factors that control the process.

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[P.T.O.]



17. (a) Define photooxidation. Explain the photooxidation of water.

Or

- (b) Bring out the major differences between C_3 and C_4 plants.

18. (a) Explain glycolysis with schematic diagram.

Or

- (b) Give a concise account of Nitrogen metabolism in nature.

19. (a) Write an essay on physiological role and mode of action of any of the growth hormones you have studied.

Or

- (b) Write short notes on:

- (i) Senescence
- (ii) Abscission
- (iii) Photoperiodism

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20. (a) Write an essay on different types of stress and its impact on morphology of plants.

Or

- (b) Explain heat-shock proteins in detail.

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