Reg. No. :

Code No. : 5898 Sub. Code : PBOM 41

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2020.

Fourth Semester

Botany – Core

PLANT PHYSIOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

PART A — (10 × 1 = 10 marks)

Maximum: 75 marks

Answer ALL questions.

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Choose the correct answer :

1. The loss of water from stomata of leaves is known as

- (a) Guttation (b) Exudation
- (c) Transpiration (d) Evaporation
- 2. Which one of the following elements in plants is not remobilized?
 - (a) Calcium (b) Phosphorus
 - (c) Sulphur (d) Potassium
- 3. The photosynthetic pigments absorb
 - (a) UV radiation (b) IR radiation
 - (c) Visible radiation (d) Gama radiation

- 4. Photosynthesis is maximum in the light.
 - (a) Blue light
 - (b) Red light
 - (c) Blue and green light
 - (d) Blue and red light
- 5. The photorespiration involves the process.
 - (a) Glycolate cycle (b) Kreb's cycle
 - (c) Calvin cycle (d) CAM cycle
- 6. The net gain of ATP produced during the oxidation of one glucose molecule in a plant cell.
 - (a) 38 ATP molecules (b) 30 ATP molecules
 - (c) 36 ATP molecules (d) 24 ATP molecules
- 7. Auxin transport is
 - (a) Polar (b) Non-polar
 - (c) Symplast (d) Apoplast
- 8. Which one of the following is natural cytokinin?
 - (a) Isopentanyl adenine
 - (b) Zeatin
 - (c) 6-Isopentanyl aenine
 - (d) 6-amino amine
- 9. Pollen grains of some species can survive even at
 - (a) 70° C (b) 80° C
 - (c) 60° C (d) 50° C
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- 10. Dry seeds can tolerate temperatures as high as
 - (a) $135^{\circ}C$ (b) $120^{\circ}C$
 - (c) $125^{\circ}C$ (d) $130^{\circ}C$

PART B — $(5 \times 5 = 25 \text{ marks})$

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

Each answer should not exceed 250 words.

11. (a) Write down the water and plant relations.

Or

- (b) Explain the importance of macronutrients.
- 12. (a) Briefly explain the photo oxidation of water.

Or

- (b) Write short notes on photorespiration.
- 13. (a) Describe the terminal oxidation.

Or

- (b) Explain the ammonia assimilation.
- 14. (a) Give a concise account on physiological role and mechanism of ethylene.

Or

- (b) Briefly explain the morphactins.
- 15. (a) Explain the biotic stress factor.

Or

(b) Describe the abiotic stress factor.

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PART C — $(5 \times 8 = 40 \text{ marks})$

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

Each answer should not exceed 600 words.

16. (a) Write an essay on K⁺ ion transport and stomatal regulation.

Or

- (b) Give a detailed account on phloem loading and unloading.
- 17. (a) Explain the light harvesting complexes PS I and PS II.

 \mathbf{Or}

- (b) Narrate the CAM pathways.
- 18. (a) Enumerate the mitochondrial electron transport.

 \mathbf{Or}

- (b) Give an account of mechanism of nitrate uptake and reduction.
- 19. (a) Write an essay on phytochrome.

Or

- (b) Explain the followings:
 - (i) Senescence
 - (ii) Abscission
- 20. (a) Give a detailed account of stress physiology.

Or

(b) Explain the stress resistance mechanism.

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