

Exam Date & Time: 28-Sep-2020 (02:00 PM - 05:45 PM)



PSG COLLEGE OF ARTS AND SCIENCE

Note: Writing 3hrs: Checking & Inserting Image : 30mins

MSc DEGREE EXAMINATION MAY 2020
(Fourth Semester)

Branch - BOTANY

PLANT PHYSIOLOGY AND BIOCHEMISTRY [18BOP18]

Marks: 75

Duration: 210 mins.

SECTION A

Answer all the questions.

- 1) Active uptake of minerals by roots mainly depends on the
 - (i) Availability of oxygen
 - (ii) Temperature
 - (iii) Light
 - (iv) Availability of CO₂(1)

- 2) Stomata open at night and close during day time in
 - (i) Xerophytes
 - (ii) Mesophytes
 - (iii) Succulents
 - (iv) Hydrophytes(1)

- 3) What is the nature of an enzyme?
 - (i) Vitamin
 - (ii) Lipid
 - (iii) Carbohydrate
 - (iv) Protein(1)

- 4) What is the function of phosphorylase?
 - (i) Transfer inorganic phosphate
 - (ii) Transfer carboxylate group
 - (iii) Use H₂O₂ as the electron acceptor.
 - (iv) Transfer amino group(1)

- 5) During photosynthesis oxygen is evolved from
 - (i) carbohydrates
 - (ii) proteins
 - (iii) sunlight
 - (iv) water(1)

- 6) The amount of ATP required for the synthesis of one glucose molecule in C₄ pathway is (1)
 - (i) 18 ATP
 - (ii) 30 ATP

- (iii) 12 ATP
- (iv) 24 ATP

- 7) Conversion of pyruvic acid into ethyl alcohol is facilitated by the enzymes
(i) carboxylase
(ii) phosphatase
(iii) dehydrogenase
(iv) carboxylase and dehydrogenase. (1)
- 8) In succulent xerophytes the R.Q is
(i) zero
(ii) unity
(iii) less than one
(iv) more than one (1)
- 9) Which of the following is necessary for biological nitrogen fixation?
(i) Copper
(ii) Zinc
(iii) Manganese
(iv) Molybdenum (1)
- 10) Seed dormancy allows the plants to
(i) overcome unflavourable climate conditions
(ii) Develop healthy seeds
(iii) reduce viability
(iv) prevent deterioration of seeds (1)

SECTION B

Answer all the questions.

- 11) Write notes on absorption of water. (7)
- a)
[OR] Explain about osmosis. (7)
b)
- 12) What are the affecting enzyme actions? (7)
- a)
[OR] List out the properties of enzymes. (7)
b)
- 13) Describe about Glycolate pathway. (7)
- a)
[OR] Narrate the components of pigment system II. (7)
b)
- 14) Outline the ATP generation. (7)

- a)
[OR] List out the factors affecting respiration. (7)
b)
- 15) Explain nitrogen fixation. (7)
- a)
[OR] Describe the α and β oxidation of fat. (7)
b)

SECTION C

Answer 3 out of 5 questions.

- 16) Discuss on photoperiodism with neat sketch. (10)
- 17) Enumerate the isolation and purification of enzymes. (10)
- 18) Give an account on C4 cycle. (10)
- 19) Highlight the pentose phosphate pathway. (10)
- 20) Discuss on physiology of fruit ripening. (10)

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