

K-357

Total Pages : 4

Roll No.

MSCBOT-601

Plant Physiology and Biochemistry

M.Sc. Botany (MSCBOT)

3rd Semester Examination, 2023 (Dec.)

Time : 2 Hours]

Max. Marks : 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. (a) Discuss the active and passive mechanism of mineral ion absorption, with special emphasis on the role of channel and transporter proteins.
(b) Elucidate the pathway of water across root cells with necessary diagram. [12+7=19]
2. (a) Elaborate the events occurring during Crassulacean acid metabolism (CAM) cycle with schematic diagram.
(b) What is the role of RuBisCo in carbon fixation? [12+7=19]
3. (a) Discuss the role of different osmolytes and antioxidants in regulating stress tolerance in plants.
(b) What are the biochemical events involved in flowering response? [14+5=19]
4. How was gibberellin first discovered? Discuss the mechanism of action of gibberellin in plants. Elucidate the different roles of gibberellin in plant physiology. [3+6+10=19]
5. (a) Discuss the structure and functions of different classes of terpenoids.
(b) How will you calculate the efficiency of respiration in plants? [12+7=19]

SECTION-B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. Write short notes on :
 - (a) Kranz anatomy.
 - (b) Alkaloids. [4×2=8]
2. Discuss the anatomy of phloem tissue. What are the experimental evidences to show that sugar translocation occurs through phloem? [3+5=8]
3. Differentiate between:
 - (a) Carotene and xanthophyll.
 - (b) Cyclic and non-cyclic photophosphorylation. [4×2=8]
4. What are the roles of Nod factors and leghemoglobin in nitrogen fixation? [4+4=8]
5. Differentiate between saturated and unsaturated fatty acids. Discuss the properties of oleic, linoleic and stearic acids. [2+6=8]

6. Discuss the different steps of protein synthesis in eukaryotes with a diagram. Name two inhibitors of protein synthesis. [6+2=8]
7. Discuss the deficiency symptoms of manganese and molybdenum in plants. [4+4=8]
8. What are the causes of salinity stress and its major consequences in plants? [4+4=8]
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