P.G. Semester-II Examination, 2023

BOTANY

Course ID : 21351 **Course Code : BOT201C(T)**

Course Title : Plant Physiology

Time : 2 Hours Full Marks : 30

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer **all** the questions.

1. Answer any **four** of the following questions : 1×4=4

   a) Mention the type of transport (apoplastic/ symplastic) occurring when nutrients move from source to sieve tube.

   b) Name two types of pump operating in ion environment.

   c) What are photoassimilates?

   d) What are hormone mutants?

   e) Give one biological significance of dormancy.

   f) What is photoperiodism?

   g) Name the precursor of auxin biosynthesis.

   h) Define progressive senescence.

2. Answer any **two** of the following questions: 5×2=10

   a) Mentioning subcellular localization of each enzyme enumerate the various types of decarboxylation reaction in C4 mode of photosynthesis. 5

   b) What would happen if 1% sucrose solution is separated from 1% glucose solution by a semipermeable membrane? How polymer trapping mechanism helps nutrient transport in plants? 1+4=5

   c) Give an account of the physiological functions of auxin. 5

   d) Discuss the role of different hormones and genes in controlling seed dormancy. 5

   e) Briefly describe the various theories in support of the physio-biochemical changes associated with senescence. 5

3. Answer any **two** of the following questions: 8×2=16

   a) What do you mean by source-sink relationship? Diagrammatically explain the mechanism of phloem loading and unloading in plants. 2+6=8

b) Describe with suitable figures the carbon dioxide concentrating mechanism in single cell of prokaryotic and eukaryotic photosynthesizing cell. 8

c) What are the major classes of plant hormones? What are the functions of salicylic acid? 6+2=8

d) Give an account of the ABC model of floral development. How floral organ identity is regulated by tetrameric complexes of the ABCE proteins? 4+4=8

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