2019

BOTANY

(Major)

Paper : 6.3

(Plant Physiology)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following questions : 1×7=7

(a) What is photoinhibition?

(b) What do you mean by chemical potential?

(c) Define permanent wilting percentage.

(d) What is apoplast?

(e) Name the plant hormone discovered from rice field.

(f) What is the element present in middle lamella?

(g) Who proposed *Z* scheme and suggested that two-pigment system operates in series?

2. Answer the following questions in brief : 2×4=8

(a) During day time, why does pH of guard cell increase?

(b) What is Kranz anatomy? Give an example of plant having Kranz anatomy.

(c) What is apical dominance?

(d) Why is translocation process bidirectional?

3. Answer/Write on any *three* of the following : 5×3=15

(a) Phloem loading and unloading

(b) Florigen concept

(c) "Transpiration is a necessary evil." Justify.

(d) Write a short note on any one of the vital theories of ascent of sap.

(e) Explain briefly glycolytic pathway.

4. (a) How is water translocated in plants—describe the mechanism with modern theory. Justify the acceptability of the theory. 7+3=10

Or

What are inner space and outer space? Work out the active mechanism of mineral salt absorption. 3+7=10

(b) Discuss the roles of P_{680} and P_{700} in cyclic and non-cyclic electron transport pathways. 10

Or

What do you understand by gibberellins and cytokinins? Give an account of their physiological role and mechanism of their actions. 3+7=10

(c) Define photoperiodism. What is unique feature of phytochrome, which differentiates it from other pigments? Define LDP, SDP and DNP according to their photoperiodic response with at least two examples. 2+2+6=10

Or

Explain the different abiotic stresses in plants. How do the plants defend themselves against these stresses? 2+8=10

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