

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 : $2 \times 4 = 8$

- (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 :

$5 \times 3 = 15$

- (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
