

2016

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) Define senescence.
 - (b) What is cell sap?
 - (c) Which elements are required for photolysis of water?
 - (d) What are the components of water potential of plant cell?
 - (e) Do you agree that water is the only possible electron donor in photosynthesis?

- (f) What are accessory pigments?
- (g) Name the enzyme that interconnects the glycolysis with Krebs' cycle.
2. Briefly describe about the following : $2 \times 4 = 8$
- (a) Significance of photorespiration
 - (b) Vernalization
 - (c) Apoplast and Symplast
 - (d) Symptoms of Zn and Mn deficiency
3. Write on any *three* of the following : $5 \times 3 = 15$
- (a) Red Drop and Emerson's enhancement effect
 - (b) Mass or pressure flow hypothesis of the transport of organic solutes
 - (c) Difference between trace and tracer elements
 - (d) Assimilate partitioning
 - (e) Cytochrome pump
4. (a) What is transpiration? Describe the ATP-driven proton-potassium exchange mechanism in guard cells. "Transpiration is a necessary evil." Justify the statement. $2+6+2=10$

(3)

Or

What do you mean by non-osmotic water absorption? With the help of suitable examples, explain the mechanism of active transport. $2+8=10$

- (b) Enumerate the differences between C_3 and C_4 photosynthesis. 10

Or

Explain pentose-phosphate pathway. What is its significance? $7+3=10$

- (c) What is stress? Give a brief account of water and salt stress in plants. $2+4+4=10$

Or

What is phytohormone? How many kinds of them are known to you? Describe the physiological roles of auxin. $2+1+7=10$
