

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

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