

2018

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) A cell has osmotic potential of -12 bars and its pressure potential is 8 bars. Find out its water potential.
- (b) Name the element which forms the core constituent of the ring structure of chlorophyll.
- (c) Name the metal present in the water splitting complex associated with photosynthesis.
- (d) What is the site of functioning of catalase?

(2)

- (e) Which is the most important limiting factor in photosynthesis?
- (f) Who coined the term 'vernalization'?
- (g) Under water stress condition what is the most common amino acid accumulated in plants?

2. Answer the following questions : $2 \times 4 = 8$

- (a) What is photorespiration?
- (b) What is the role of molybdenum in plants?
- (c) Name the essential cofactors required for the formation of acetyl coenzyme-A.
- (d) What is the significance of osmotic potential?

3. Answer any three of the following : $5 \times 3 = 15$

- (a) Describe the role of K^+ in opening of stomata
- (b) Describe the ion Pump theory of salt absorption
- (c) Define stress. Describe briefly xenobiotic stress with example.
- (d) Describe how radioactive tagging technique is used in understanding bidirectional movement of solute in plants.
- (e) Briefly explain the pathway of CAM.

(3)

4. (a) How are solutes translocated from source to sink? Describe the mechanism with modern theory. Justify the acceptability of the theory. $7+3=10$

Or

Mention the properties of water important to plants. Justify "Transpiration is a necessary evil". $5+5=10$

- (b) Justify " C_4 cycle is more efficient than C_3 cycle". Describe C_4 cycle with proper pathway and explanation. $3+7=10$

Or

What is the function of electron transport system in mitochondria? How does it work and from what source it derive reducing power for operation? $3+7=10$

- (c) Describe the possible role of auxin for apical dominance and abscission. $5+5=10$

Or

What is dormancy? Explain the methods used and principle involved to break seed dormancy. $2+8=10$
