

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?



- (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.

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.  $2+8=10$

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