

2014

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 :

1×7=7

- (a) Name the physiological process which involves transpiration pull and cohesion of water.
- (b) Name the hormone used for fruit ripening.
- (c) Name the technique of 'soilless culture'.
- (d) Name the fungus from which gibberellin was first isolated.
- (e) Which molecule acts as connecting link between glycolysis and Krebs' cycle?

- (f) Name the primary CO_2 acceptor in CAM plants.
- (g) Name the terminal electron acceptor in aerobic respiration.

2. Briefly describe the following : 2×4=8

- (a) Criteria of essentiality of elements
- (b) Osmotic potential
- (c) Photolysis of water
- (d) Aging

3. Answer any *three* of the following : 5×3=15

- (a) What is stress? How do plants respond to water stress? 1+4=5
- (b) With which physiological process the name 'Munch' is associated and how? 1+4=5
- (c) What is vernalization? Who coined the term vernalization? Write about the practical utility of vernalization. 1+1+3=5
- (d) Write a note on Donnan's equilibrium. 5
- (e) Define natural auxin. Write about the functions of auxin. 1+4=5

4. (a) Define water potential. What are different components of water potential? How does water potential influence the movement of water within plant cells?

1+4+5=10

Or

Write the modern concept of stomatal movement based on K^+ influx.

10

- (b) What is photophosphorylation? Compare and contrast non-cyclic and cyclic photophosphorylations.

2+8=10

Or

Give a comprehensive account of photorespiration.

10

- (c) Describe EMP pathway giving suitable diagram. Mention its importance.

10

Or

Describe photoperiodism and write about its role in flowering.
