K16U 0138

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CCSS-Reg./Supple./Improv.) Examination, May 2016
CORE COURSE IN BOTANY/PLANT SCIENCE
6B11 BOT/PLS : Plant Physiology
(2012 Admn. Onwards)

Time : 3 Hours Total Weightage : 30

SECTION – A

Answer **all**. **Each** cluster carries a weightage of **1**.

1. Choose the correct answer :
   i) Passive absorption of water in plants is mainly due to
      a) Photosynthesis b) Transpiration c) Diffusion d) Osmosis
   ii) Reaction centre of pigment system II is
      a) P_{680} b) P_{700} c) P_{620} d) P_{800}
   iii) Plastocyanin is a copper containing
      a) Carbohydrate b) Lipid c) Protein d) Hormone
   iv) In plants stomatal closure is due to the presence of
      a) Ethylene b) Auxin c) Gibberellin d) Abscisic acid

2. State **true** or **false** :
   i) Vernalization is an aerobic process.
   ii) When water potential decreases in a leaf tissue, the abscisic acid content decreases ?
   iii) Premature leaf fall in plants is due to the deficiency of phosphorus.
   iv) The period of water stress is called drought.

3. Fill in the blanks :
   i) Stomata of CAM plants are open during _____
   ii) Ripening of the fruits is promoted by the plant hormone _____
   iii) The response of plants to contact is known as _____
   iv) Loss of H_2O in the form of vapour through the aerial organs of the plant is known as _____

4. Match the following :

A	B	C
i) Calvin Cycle	Oxalo acetic acid	Bonner and Bonner
ii) C_4 Pathway	Succulents	Krotkov et al.
iii) CAM Pathway	Chloroplast, peroxisome and mitochondria	Melvin Calvin
iv) C_2 Pathway	3 phospho glyceric acid	Hatch and Slack

5. Answer in **one** word or **one** sentence :
   i) Ferredoxin
   ii) Water stomata
   iii) Precursor of IAA
   iv) Photoblastism

(5×1=5)

SECTION – B

Answer **any four**. **Each** question carries a weightage of **1**.

Differentiate the following :

6. Plasmolysis and deplasmolysis.
7. Quantum requirement and quantum yield.
8. Senescence and abscission.
9. Photoperiodism and vernalization.
10. Scarification and stratification.
11. Phytochromes and cryptochromes. **(4×1=4)**

SECTION – C

Short answer questions. Answer **any five**. **Each** question carries a weightage of **1**.

12. Describe starch sugar inter conversion theory regarding the opening and closing of stomata.
13. What is guttation ?
14. Describe root pressure theory regarding the mechanism of ascent of sap.

15. Explain cyclic photophosphorylation.
16. What is phloem loading ?
17. Which are the different phases in the growth curve of a plant ?
18. Describe the physiological role of abscisic acid. **(5×1=5)**

SECTION – D

Short answer questions. Answer **any six**. **Each** question carries a weightage of **2**.

19. Bringout the differences between the active absorption and passive absorption of water.
20. Explain red drop and Emerson's enhancement effect.
21. Describe photo respiration.
22. Explain the significance of photoperiodism.
23. Mention the factors responsible for dormancy of seeds.
24. Describe the different types of senescence in plants.
25. What is meant by biological clock ?
26. What are anti transpirants ? Give examples. **(6×2=12)**

SECTION – E

Essay type question. Answer **any one**. **Each** question carries a weightage of **4**.

27. Describe C_4 pathway, CAM pathway and their significance.
28. Give the significance of transpiration. Explain the theories related to stomatal movement.
29. Write an essay on drought and salt stress in plants. Explain the methods adopted by plants to overcome these. **(1×4=4)**

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