

KERALA AGRICULTURAL UNIVERSITY
B.Sc. (Ag) 2004 Admission IV Semester Final Examination,
December 2006

2004-05

Phys
Phy 2201
Elementary crop physiology (2+1)

Max. Marks: 60
Time: 2½ hours

I. Objective type questions

Fill up the blanks

(10X 0.5: 5.0)

1. Thylakoids are found in -----
2. The initial stage of plasmolysis is called as -----
3. Transpiration pull is the main force behind -----absorption of water.
4. -----is the first step in absorption of mineral salts by plant.
5. -----of cauliflower caused by the deficiency of Mo.
6. Photolysis of water in photosynthesis requires the presence of Mn and -----
7. Dimorphic chloroplasts are found in the leaves of -----plants.
8. Beta oxidation of fatty acids takes place in mitochondria and -----.
9. The RQ value is less than one, when the respiratory substrates are -----
10. -----called as necessary evil.

Write True or False

(5X 0.5: 2.5)

1. The precursor for auxin synthesis in plants is proline.
2. Middle lamella chiefly consists of calcium pectate
3. The specific heat 1g pure water is 8368 joules.
4. Casparian strips are found in endodermal cells of roots.
5. Chlorosis of leaves due to S deficiency begins first in young leaves.

Choose the correct one

(5X0.5: 2.5)

1. Magnesium is an important component of
 - a. Chlorophyll
 - b. Cytochrome
 - c. Phaeophytin
 - d. All
2. Non cyclic electron transport in photosynthesis is known as
 - a. Q scheme
 - b. S scheme
 - c. Z scheme
 - d. None
3. RUBISCO is exclusively found in
 - a. Mitochondria
 - b. Chloroplast
 - c. Cytosol
 - d. All
4. Which one of the following is not a phospholipid?
 - a. Lecithin
 - b. Cephalin
 - c. Cardiolipin
 - d. None
5. The net gain of ATP molecules in oxidation of one molecule of glucose in glycolysis is
 - a. 1
 - b. 2
 - c. 3
 - d. 4

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II. Questions for short answers

(14x1: 14)

1. Differentiate growth promoter and growth retardant.
2. What is respiratory quotient?
3. Write a note on Emerson's enhancement effect.
4. Define photophosphorylation.
5. Differentiate chlorophyll a and chlorophyll b.
6. What is meant by transpiration pull ?
7. Define permanent wilting point.
8. Write a note on DPD.
9. Differentiate osmosis and diffusion.
10. What is Hill reaction?
11. What is meant by Brownian movement.?
12. What is passive absorption?

*14 questions are required
in this section but only
12 questions are given*

III. Questions for short notes (Answer any eight)

(8 x 2: 16)

1. Write the importance of Kreb's cycle.
2. Brief physiological dryness and wilting coefficient.
3. Differentiate α and β oxidation.
4. Differentiate cyclic and non cyclic photophosphorylation.
5. Write a short note on light reaction in photosynthesis.
6. Write the mechanism of salt uptake in plants.
7. Write the role of stomata in transpiration.
8. Brief the symptoms of Zn and B deficiency in plant
9. Write physiological functions of gibberellins.
10. Describe the structure of mitochondria

IV. Short Essays (Answer any five).

(5X4: 20)

1. Write a detailed account of glycolysis.
2. What is water potential? Explain its components and write short notes on plasmolysis and DPD.
3. Explain the process of absorption of water and the factors involved.
4. Give a brief account of the transpiration process and discuss the factors that influence transpiration.
5. Explain the role of essential elements in plant nutrition.
6. Describe cyclic and non cyclic electron transport and photophosphorylation.