



THE OPEN UNIVERSITY OF SRI LANKA
B.Sc./B.Ed. DEGREE PROGRAMME – 2007/2008
BOTANY – LEVEL 04
BTU 2201/BTE 4201 – PLANT PHYSIOLOGY
ASSESSMENT TEST I – (OPEN BOOK TEST)
DURATION : ONE (01) HOUR

Registration No.

DATE : 23rd January 2008

TIME: 3.00 p.m. – 4.00 p.m.

PART – I

Answer **ALL** questions in the space provided.

01. Fill in the blanks with appropriate word/words to complete the following statements.
- a. The space between the two parallel membranes of the nuclear envelope is called the _____ space.
 - b. Peroxisomes breakdown glycolic acid produced in _____
 - c. The cytoskeleton of plants consists of proteinaceous microtubules and _____
 - d. The di-,tri- and tetra-saccharides are collectively referred to as _____
 - e. A polypeptide is formed by joining up of a number of amino acids by _____ bonds.
 - f. Ribosomes coordinate the synthesis of _____
 - g. Cell membranes consists of a fluid _____ in which a variety of proteins are embedded.
 - h. The attraction between unlike molecules is called _____
 - i. The molecules or ions move from regions of higher concentration to regions of lower concentration along a _____
 - j. The process by which water is absorbed by hydrophilic substances is called _____

- k. The properties of a solution which depend on the number of particles are called _____ properties.
- l. The movement of water molecules from a water body or a surface saturated with water into the atmosphere is termed _____.
- m. The two most common forms of plasmolysis are the _____ and _____ forms.
- n. Field capacity of a soil is the water content of a soil after the soil has been _____ with water and excess water has been allowed to drain off.
- o. A mycorrhiza is a combination of a root and a _____.
- p. Transpiration of plants require _____ between water molecules.
- q. _____ is the most common material transported in the phloem.
- r. The function of P-protein seems to be sealing off damaged sieve elements by plugging the _____ pores.
- s. The characteristic symptom of magnesium deficiency is _____.
- t. The technique of growing plants with their roots immersed in a nutrient solution is referred to as _____.

02. a) What is a 'stoma'?

.....

b) List five (05) environmental factors which affect stomatal movement.

- i.
- ii.
- iii.
- iv.
- v.

c) Briefly describe the structure of a 'stoma'

.....
.....
.....
.....
.....
.....

d) Briefly explain the mechanism of stomatal movement.

.....
.....
.....
.....
.....
.....

e) Explain the following.

i. Diurnal rhythm of stomatal movement.

.....
.....
.....
.....

ii. Stomatal density.

.....
.....

iii. Sub-stomatal cavity.

.....
.....

PART – II

Registration No.....



Multiple choice questions.

Underline the most appropriate answer.

01. The bonding between hydrogen atoms and the oxygen atom in a molecule of water is best described as
 - (a) ionic bonding
 - (b) non polar, covalent bonding
 - (c) polar, covalent bonding
 - (d) hydrogen bonding

02. Which of the following is the major lipid component of most biological membranes?
 - (a) Fats
 - (b) Phospholipids
 - (c) Cholesterol plus steroids
 - (d) Carbohydrates

03. In plants continuity of the symplast is achieved by,
 - (a) plasmodesmata.
 - (b) intercellular spaces.
 - (c) the middle lamellae between adjacent cell walls.
 - (d) cohesion of water molecules.

04. Small clay particles hold calcium, potassium and magnesium ions because their surfaces are,
 - (a) smooth
 - (b) negatively charged
 - (c) positively charged
 - (d) covered with tiny crevices

05. Active uptake
 - (a) requires a carrier protein
 - (b) moves molecules against its concentration gradient.
 - (c) requires a supply of energy.
 - (d) all of the above are correct.

06. Endomycorrhizae
 - (a) do not penetrate into the root cells
 - (b) forms a Hartig net
 - (c) penetrate the root cells forming an internal hyphal network.
 - (d) belong to the class Basidiomycetes.

07. Water potential measures the tendency of water to
- (a) evaporate
 - (b) move from one place to another
 - (c) condense
 - (d) adhere
08. Plants require many minerals in large quantities. Three minerals which are most rapidly removed from soil are present in most commercial fertilizers. These are
- (a) Potassium, iron, sulphur
 - (b) Potassium, nitrogen, phosphorous
 - (c) Nitrogen, phosphorous, sulphur
 - (d) Potassium, calcium, nitrogen.
09. The movement of water upward in xylem vessels is thought to occur as a consequence of
- (a) cytoplasmic streaming
 - (b) turgor pressure
 - (c) transpiration pull
 - (d) mass flow
10. Transpiration of plants requires all of the following except
- (a) cohesion between water molecules
 - (b) evaporation of water molecules
 - (c) active transport of water molecules
 - (d) transport through xylem

- Copyrights reserved -