

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. DEGREE PROGRAMME - 2006/2007
BOTANY - LEVEL 4
BTU 2201/BTU4201 - PLANT PHYSIOLOGY
ASSESSMENT TEST (OPEN BOOK)



DURATION: ONE HOUR

REGISTRATION NO.....

DATE: 31st December 11, 2006

TIME : 10.30a.m. - 11.30a.m.

PART 1

ANSWER ALL QUESTIONS IN THE SPACES PROVIDED

01. A fully turgid cell has an osmotic potential of -1000 kPa. Yet the cell is in equilibrium with pure water, that is there is no net gain or loss of water to or from the cell.

a) State the water potential of this cell.

.....

b) Calculate the pressure potential of the cell.

.....

.....

c) (i) In which direction would water flow if the cell is transferred to a sucrose solution with a water potential of -1000 kPa?

.....

(ii) Predict changes in osmotic potential and pressure potential which might occur.

.....

(iii) Under what conditions will the flow of water cease?

.....

02. Fill in the blanks with appropriate words to complete the following statements.

- a) Endoplasmic reticulum is called "rough" when it has
embedded in its surface.
- b) Peroxisomes and glycosomes are; they are bound by
single unit Peroxisomes breakdown
..... while glyoxisomes breakdown
- c) The covalent bond between two amino acids is called a
bond. When three or more amino acids are joined, they form a
..... chain.
- d) The is the boundary between the cell and the
environment.
- e) The main polymer that forms a plant cell is
^{wall}
- f) A fat molecule has fatty acids whereas a phospholipid has
..... fatty acids.
- g) The basic structure of all cell membranes is a bilayer, with the
..... of phospholipid molecules at the outer
surfaces and the between the surfaces
- h) Membrane carbohydrates when bonded to lipids are called
..... and when bonded to proteins are called
.....
- i) Most of the extraordinary properties of water is caused by the
..... of its molecule.
- j) Water potential is a sum of two opposing forces in a plant cell,
..... and
- k) Water flows from where its potential is to where its
potential is The water potential of a cell
..... when solutes are added, when
water is added, and when pressure is added.