THE OPEN UNIVERSITY OF SRI LANKA

FOUNDATION PROGRAMME IN SCIENCE - 2008/2009

PSF 2305/PSE 2305 – BOTANY II

ASSESSMENT TEST I (OPEN BOOK TEST)

DURATION : ONE (01) HOUR **REGISTRATION NO.....**

DATE : 13TH January 2009 **TIME : 1.00 p.m. - 2.00 p.m.**

ANSWER ALL QUESTIONS ON THE SPACE PROVIDED

Total No. of questions - 04

Total No. of pages - 04

01. State whether the following statements are true (T) or false (F) in front of the space provided.

(a) The symplast pathway carries more water than the apoplast pathway within the root cells. .....

(b) A plant cell placed in a hypotonic solution will take up water. .....

© For the movement of water and ions into and out of cells against concentration gradients, cellular energy is not required. .....

(d) Glycolysis requires molecular oxygen. .....

(e) Photosynthetically active pigments are found in the stroma of the chloroplast. .....

(f) K^+ ions involve in controlling opening and closing process of stomata. . .....

(g) Kreb's cycle in respiration occurs in the inner membrane of the mitochondrion. .....

(h) A cell is said to be plosmolysed when the cell membrane extends and presses against the cell wall due to increased volume of cell sap. .....

(i) Boron is an essential element to plants. .....

(j) Oxygen derives from H_2O in photosynthetic reactions. .....

(k) The reaction Glucose into Pyruvic acid takes place in the matrix of the mitochondrion. .....

(l) The leaf anatomy of C_3 plants is different to that of C_4 plants. .....

(m) Temperature affects the rate of reactions in respiration by changing the activity of enzymes. .....

(n) The organisms which obtain the energy required to reduce CO_2 from certain chemical reactions are referred to as phototrophs. .....

(o) Translocation is the process of transport of water within the xylem tissues. .....

02. Fill in the blanks with the most appropriate word/words.

(a) The water potential of ..... is considered as zero at standard temperature and pressure.

(b) When the ..... of stomata lose water, they become flaccid and the stomata closes.

(c) The organisms which obtain the energy required to reduce carbon dioxide from certain chemical reactions are referred to as .....

(d) .....theory put forwarded by Henry Dixon gives a reasonable explanation for the ascent of sap in tall trees.

(e) .....is a chemical which can be used as a indicator in measuring transpiration.

(f) Exudation of liquid water from plants is known as .....

(g) Most of the water absorbed by plants is lost in the form of ..... by the process referred to as transpiration.

(h) The ratio of the volume of carbon dioxide evolved and the volume of oxygen absorbed is referred to as.....

(i) The two important products of the light reaction of photosynthesis are .....and NADPH.

(j) The cells which believed to be involved in active loading and unloading in phloem translocation are known as .....

03 (a) What is translocation?

.....

.....

(b) What is the main organic constituent of the sap that being translocated and what is the path of this translocation?

The main organic constituent is .....

The path is .....

(c) Explain briefly a simple technique to investigate translocation in plants which requires no sophisticated instruments.

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(d) In explaining the translocation process, state the places where energy is needed in the form of ATP.

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04. Write two main differences between each of the following.

(i)	Transpiration	Guttation
	.....	.....
	.....	.....
(ii)	Aerobic respiration	Anaerobic respiration
	.....	.....
	.....	.....
(iii)	C_4 plants	C_3 plants
	.....	.....
	.....	.....
(iv)	Symplast	Apoplast
	.....	.....
	.....	.....
(v)	Diffusion	Osmosis
	.....	.....
	.....	.....
(vi)	Phototrophs	Chemotrophs
	.....	.....
	.....	.....