

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME- 2014/2015

BOTANY- LEVEL 04

BOU2200: PLANT PHYSIOLOGY

ASSESSMENT TEST 1 (OPEN BOOK TEST)

DURATION: ONE (01) HOUR

Registration No.

Date: 14/03/2015

Time: 02.30p.m - 3.30 p.m

No. of questions: 05

No. of pages: 05

ANSWER ALL QUESTIONS IN THE SPACE PROVIDED

01. Fill in the blanks with the most appropriate word/words to complete the following statements

- a) is the most abundant lipid in a cell membrane.
- b) The soil water content at which plants remain wilted even water is added to the soil is called
.....
- c) Cellulose is an polymer of glucose.
- d) is the total capacity of a soil to hold exchangeable cations.
- e) is the most common material transported in phloem.
- f) A polypeptide is formed by joining up a number of amino acids by
.....
- g) Proteins that have other chemical components in addition to amino acids are called
.....

h) Hydathodes are structures present on, which are important inprocess.

02. Indicate whether the statements given below are true (T) or false (F)

- a) Globular proteins are soluble in water
- b) The main function of the region below the root hair zone is absorption of water and minerals
- c) Furanose is a six membered ring
- d) Lactose is a monosaccharide found in milk
- e) Plastids are structures bound by a double membrane and are found only in plants
- f) Both lysosomes and polysomes carry digestive enzymes
- g) Amyloplasts contain starch grains
- h) Tonoplast is a component of the endomembrane system
- i) Anthocyanin is present in chromoplasts of *Rhoeo*
- j) Transpiration pull helps to develop a water potential gradient between the soil solution and xylem sap

03. a) Explain why the disaccharides maltose and galactose are reducing sugars where as sucrose is not.

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

b) Briefly discuss the following statement "Membrane lipids are amphiphathic molecules."

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

c) How do saturation and length of fatty acids contribute to the membrane flexibility?

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

d) Classify the membrane proteins based on their position in lipid matrix and write down the functions of each.

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

04. a) Define the term "water potential"

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

b) What are the factors that affect the water potential ?

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

c) If a plant cell's $\psi_p = 2 \text{ kPa}$ and its $\psi_s = -3.5 \text{ kPa}$, calculate its ψ_w

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

d) If the above plant cell is placed in a beaker of sugar solution with

(i) $\psi_s = -4 \text{ kPa}$

(ii) $\psi_s = -0.15 \text{ kPa}$

in which direction will the net flow of water be ?

(note: state your assumptions clearly)

.....

.....

.....

.....

.....

.....

.....

.....

.....

05. a) What are the environmental factors that affect the stomatal movement ?

.....

.....

.....

.....

.....

b) Briefly state the involvement of K^+ in stomatal movement

.....

.....

.....

.....

.....

.....

d) Define the following terms

I. Aeroponics

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

II. Mycorrhizae

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

III. Facilitated diffusion

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

Copyrights Reserved