Ch's

Kafr El Sheikh University
Fac. Of Science
Bot. Department
1st Term/ January 2017/2018

4th level/ Botany
Course Title: Physiological Stress
Code: Bot. 424
Time allowed: 2hrs
Points: 70

Answer the following

First Question

1- Complete the missing parts: (20 points)

a) The physiological responses of plants to abiotic stress including ……., ……. and …..
b) …… of the leaves functions to protect photosynthetic machinery from direct rays of the sun.
c) Under drought conditions, cyclic electron around PSI must be follow two paths includes plastoquinones which are ……. and ……..
d) Based on ……., Meigs (1953) had classified water-limited environments into,,,,,, , …… and ..……
e) Under water-limiting conditions, plants will experience a net ……. of water to the environment and cells will …….
f) Aquatic plants required many adaptations such as …… and …… to be able to invade land.
g) ……. means soils that are saline or sodic, and these cover nearly 10% of the total land surface.
h) Plant adapted to salt stress by different strategies based mainly on one of the two major mechanisms: ……and ……..
i) Partial reduction of O_2 or excitation of triplet oxygen ($^3O_2$) cause formation of ROS that can be summarized as the following ……..
j) Fenton defined the oxidizing potential of H_2O_2 with …… according to the following equation ……

2- Write short notes on the following: (20 points)

a) Functions and metabolism of proline
b) Halophytes in respect to their origin, distribution and stress tolerance.
c) Biochemical properties of ROS in plants.
d) The drought stress and formation of ROS.

3- Compare between each pair of the following: (30 points)

a) Ion compartmentation and osmotic adjustment salt adaptive mechanisms.
b) Damage caused by ROS for protein and DNA in plants.
c) Ascorbic acid and glutathione in respect to their biosynthesis and physiological roles in plants.

Best Wishes

Kafrelsheikh University
Faculty of Science
Level: 4th Year Botany
Subject: Physiology of microorganisms
Examiners': Dr. Baher Elnogoumy

Date: 28/12/2017
Time allowed: 2 hrs.
final examination

Answer the following questions:

Question 1. (20 marks)

a- Give the scientific definition for the following:

Translocation - Chemotrophs - Psychrophiles - Halophiles - Prions.

b- Write with drawing short notes on lytic cycle of virus propagation.

Question 2. Write short notes on the following: (25 marks)

- The 5 I's of Culturing Microbes.
- Stages of standard bacterial growth curve.
- Important role of bacterial cytoplasmic membrane.
- Explain the process of surface sterilization.
- Exchanging genetic information between bacteria.

Question 3. Write shortly on the following: (25 marks)

- Describe the environmental factors influencing the abundance, activities and functions of microorganisms in environment.
- Bacterial adaptation strategy of endospore.
- Environmental and economic roles of micro-organismes in ecosystems.
- Functions and importance of bacterial cell wall.
- Methods of counting bacteria (direct and indirect).

With the best wishes