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**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE**

**IN HORTICULTURE**

**SECOND YEAR SECOND SEMESTER 2013/2014 ACADEMIC YEAR**

**REGULAR**

**COURSE CODE: AHT 3221**

**COURSE TITLE: Plant Physiology**

**EXAM VENUE:LR 3 STREAM: BSc (Horticulture)**

**DATE: 8/12/14 EXAM SESSION: 9.00 – 11.00 AM**

**TIME: 2.00 HOURS**

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**Instructions:**

1. **Answer ALL question in Section A (compulsory) and ANY TWO questions in Section B.**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**SECTION A [30 MARKS]**

1. a) Define the following terminologies
2. Water potential [1 mark]
3. Vernalization [1 mark]
4. Programmed cell death [1 mark]
5. Phototrophism [1 mark]
6. Describe briefly the relationship between senescence and abscission. [2marks]
7. Outline the differences between primary and secondary growth in plants.[4marks]
8. a) What do you understand by the concept of phenotypic plasticity in relation to plant

stress physiology? [2 marks]

b) Statethree (3) general ways plants utilize to respond to both biotic and abiotic stress. [3 marks]

1. Enumerate five (5) different developmental and physiological mechanisms plant

utilize against environmental stress. [5 marks]

1. a)Discuss the key role of abscisic acid (ABA) during drought stress. [3 marks]

b) How would you expect a plant to optimize its carbon assimilation if it's under the shade and in full sun? [3 marks]

c) Discuss the role of photoperiodism in plant growth and development. [4 marks]

**SECTION B [40 MARKS]**

1. a) Discuss briefly transpiration, mechanisms of stomataltranspiration and the different types of

stomatal movements. [15 marks]

b)Transpiration is a necessary evil in plants. Explain. [5 marks]

5. Discuss in detail events that take place during lightdependent and light independent steps in photosynthesis. [20 marks]

6. a) Using ethylene and indole-3-acetic acid (IAA) as examples, describe biosynthesis, regulation and role of hormones on plant growth and development. [14 Marks]

b) Describe the role of secondary metabolites on the plant adaptability to the environment.

[6 Marks]