



# UNIVERSITY OF EMBU

2016/2017 ACADEMIC YEAR

FIRST SEMESTER EXAMINATION

FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

RANGE MANAGEMENT

ACS 104: INTRODUCTION TO PLANT/CROP PHYSIOLOGY

**DATE: DECEMBER 8, 2016**

**TIME: 2:00-4:00PM**

**INSTRUCTIONS:**

**Answer Question ONE and ANY other TWO Questions**

**QUESTION ONE (30 MARKS)**

- a) Explain any five factors that affect the rate of water absorption. (5 marks)
- b) i) Outline the structure of a golgi apparatus (2 marks)
- ii) Explain any three functions of golgi apparatus (3 marks)
- c) A plant cell with a water potential of -830 kPa is immersed in a glucose solution whose water potential is -350 kPa. Explain the direction of water flow. (5 marks)
- d) Tabulate the differences between photosynthesis and respiration (4 marks)
- e) Explain any four factors that affect growth in plants. (4 marks)
- f) Using appropriate example show the three categories of organisms involved in biological fixation. (3 marks)

g) outline any four ways of breaking seed dormancy. (4 marks)

**QUESTION TWO (20 MARKS)**

Demonstrate that carbon dioxide is necessary for photosynthesis by Moll's experiment.

**QUESTION THREE (20 MARKS)**

a) Describe the two types of germination in plants. (6 marks)

b) Illustrate the ringing experiment that support the view that downward conduction of food takes place through phloem. (8 marks)

c) Explain any six factors that affect the rate of transpiration. (6 marks)

**QUESTION FOUR (20 MARKS)**

a) Outline the Kreb's cycle . (12 marks)

b) Explain the significance of kreb's cycle in plants. (8 marks)

**QUESTION FIVE (20 MARKS)**

a) Explain the physiological functions of mineral nutrients that influence plant growth and development. (8 marks)

b) Describe how one can demonstrate that minerals are essential for plant growth and development. (12 marks)

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