



UNIVERSITY OF EMBU

2016/2017 ACADEMIC YEAR

FIRST SEMESTER EXAMINATION

FOURTH YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

ACS 407: ASPECTS OF CROP PHYSIOLOGY

DATE: DECEMBER 2, 2016

TIME: 11:00AM-1:00PM

INSTRUCTIONS:

Answer Question ONE and ANY other TWO Questions

QUESTION ONE (30 MARKS)

- a) Define the following terms (6 marks)
- i) Plant Canopy
 - ii) Assimilate
 - iii) Yield
- b) Describe the role of auxin in crop production. (4 marks)
- c) Increased atmospheric carbon dioxide affects crop production. Discuss. (5 marks)
- d) Explain the role of respiration in crop production. (4 marks)
- e i) Describe the significance of photosynthesis in crop production. (3 marks)
- ii) Explain any four factors that determine the capacity of assimilate translocation. (4 marks)

f) Distinguish between planophile and erectophile canopies in relation to yield production in plants. (4 marks)

QUESTION TWO (20 MARKS)

- a) Use a figure to illustrate the variation of photosynthetic rates within plant species. (15 marks)
- b) Explain how different plant species dry matter production can be improved. (5 marks)

QUESTION THREE (20 MARKS)

- a) Relate the source - sink theory to increased crop yield. (10 marks)
- b) Illustrate assimilate partition during the reproductive stage. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Describe the development of the canopy in annual plants. (10 marks)
- b) Describe the ideal leave inclination for optimum dry matter production. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Explain the following concept (6 marks)
- i) Relative growth rate
 - ii) Leaf Area Index
- b) Describe the Carbon dioxide patterns within the canopy. (10 marks)
- c) Outline the physiological limit of fertilizer use in plants. (4 marks)

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