



UNIVERSITY OF EMBU

2016/2017 ACADEMIC YEAR

FIRST SEMESTER EXAMINATION

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN CROP SCIENCE, BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS
AND BACHELOR OF SCIENCE IN EDUCATION

ACS 301: FIELD CROPS

DATE: DECEMBER 2, 2016

TIME: 11:00AM-1:00PM

INSTRUCTIONS:

Answer Question ONE and ANY other TWO Questions

QUESTION ONE (30 MARKS)

- a) Discuss the origin and global spread of the following crop species
- i.) Maize (*Zea mays*) (2 marks)
 - ii.) Finger millet (*Eleusine coracana*) (2 marks)
 - iii.) Yam (*Dioscorea rotundata*) (2 marks)
- b) Using appropriate examples, explain how the following have improved production of various field crops in modern agriculture
- i. Biotechnology (3 marks)
 - ii. Green Revolution (4 marks)
- c) Discuss the following agronomic requirements for field or dry bean and pearl millet
- (i) Spacing and Plant population (3 marks)
 - (ii) Weeding (3 marks)
 - (iii) Harvesting (3 marks)
- d) List and explain FOUR main reasons of food insecurity in Kenya today (5 marks)

- e) Intercropping is a common agricultural practice in the tropics for cereals and pulses. Giving specific examples explain the merits and demerits of such agronomic practice (3 marks)

QUESTION TWO (20 MARKS)

- a) Discuss the main propagation methods in sweet potato production (5 marks)
- b) What are the main constraints to cassava production in Kenya (5 marks)
- c) Describe small-scale methods for extracting oil from rapeseed and sunflower (5 marks)
- d) What do you consider as the main advantages of ridging Irish potatoes (5 marks)

QUESTION THREE (20 MARKS)

- a) Discuss the challenges facing the production of field or dry bean in the tropical agriculture (6 marks)
- b) Discuss the main field operations for mung beans production in semi-arid Kenyan agriculture (6 marks)
- c) What are the main fertilization agronomic requirements in cultivation of soybean and sunflower in the tropical African conditions (8 marks)

QUESTION FOUR (20 MARKS)

- i) Compare and contrast the major physiological manifestations of grain maturity in sorghum and maize (8 marks)
- ii) What precautions are necessary when harvesting Irish potatoes? (4 marks)
- iii) Explain the fertilizer management strategies recommended for paddy rice production (8 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the characteristics, challenges and management options necessary in maize lethal necrosis disease (MLND) (8 marks)
- b) Smallholder farmers in the arid and semi-arid (ASAL) areas of Kenya should be advised to grow pearl millet rather than sorghum or maize. Explain the validity of this statement. (12 marks)

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