



# MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION

AGR 203: FIELD CROPS PRODUCTION

DATE: 12/11/2020

TIME: 2.00-4.00 PM

---

## INSTRUCTIONS:

Answer questions one and any other TWO questions

### QUESTION ONE (30 MARKS)

- a) Differentiate between each of the following terms:
- i. Intravarietal hybridization and intervarietal hybridization (3 marks)
  - ii. Intrageneric hybridization and intergeneric hybridization (3 marks)
  - iii. Spontaneous mutations and induced mutations (3 marks)
- b) Describe wheat production in Kenya under each of the following:
- i. Climatic requirements (6 marks)
  - ii. Altitude (2 marks)
  - iii. Soil type (3 marks)
- c) Explain **FIVE** socio-economic factors that limit field crop production in Kenya (5 marks)
- d) Explain cowpeas production under each of the following:
- i. Rainfall requirements (2 marks)
  - ii. Planting depth (1 mark)
  - iii. Plant spacing (2 marks)

**QUESTION TWO (20 MARKS)**

- a) Compare and contrast between mass selection and pureline selection methods of plant breeding (10 marks)
- b) Citing relevant examples, discuss why the use of biological control of pest and diseases offers a great potential towards achieving increased crop production (10 marks)

**QUESTION THREE (20 MARKS)**

- a) Discuss the fundamental questions that must be addressed when planning fertilization on crop fields (10 marks)
- b) Discuss the key problems facing coffee farming in Kenya (10 marks)

**QUESTION FOUR (20 MARKS)**

- a) Discuss **FIVE** environmentally sound strategies that can be employed by farmers to manage pests and diseases in field crop production systems (10 marks)
- b) Describe **FIVE** factors that a farmer needs to consider in when determining the optimum time to harvest crops (10 marks)

**QUESTION FIVE (20 MARKS)**

- a) Discuss the strategic issues that need to be addressed to ensure there is an accelerated growth of the crop production sector in Kenya (10 marks)
- b) Describe the concept of soil PH stabilization as a key practice towards achieving optimal crop yields (10 marks)