



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF EDUCATION (SPECIAL NEEDS)

AGR 309: PERENNIAL CROPS

DATE:

TIME:

INSTRUCTION: Answer Question One (Compulsory) and Any Other Two Questions.

QUESTION ONE (COMPULSORY)(30 MARKS)

- a) With a specific crop example, explain the role of each of the following practices in perennial crops
- i. Top working (1 mark)
 - ii. Skirting (1 mark)
- b) Explain four uses in each of the following perennial crops
- i. Coffee (2 marks)
 - ii. Macadamia (2 marks)
 - iii. Cashew nut (2 marks)
- c) Explain four roles played by perennial crop towards economic growth in Kenya. (2 marks)
- d) i) Describe four methods of maintaining a plucking table in tea production (4 marks)
ii) Explain four challenges associated with pruning in tea production (2 marks)
- e) Describe how the following crops are propagated
- i. Sisal (2 marks)
 - ii. Sugarcane (2 marks)

- f) With a specific crop example, describe the distinctions of damages caused by the following pests and diseases
- i. Internode and top borers (3 marks)
 - ii. Yellow leaf spot and eye spot (3 marks)
- g) Describe two ways of rehabilitating cashew nuts that a farmer can adopt for improved production (4 marks)

QUESTION TWO (20 MARKS)

- a) Explain six solutions to challenges facing farmers in perennial crop production in Kenya (12 marks)
- b) Discuss sisal production under the following subheadings: (8 marks)
- i. Ecology
 - ii. Nursery management
 - iii. Seedbed fertilization
 - iv. Fibre extraction

QUESTION THREE (20 MARKS)

- a) Discuss the production of coconut under the following subheadings
- i) Ecological conditions (3 marks)
 - ii) Harvesting (3 marks)
 - iii) Lethal bole rot (3 marks)
- b) Discuss coffee production under the following subheadings
- i) Climatic requirements (3 marks)
 - ii) *Coffea canephora* characteristics (2 marks)
 - iii) Breeding and selection (3 marks)
 - iv) Coffee leaf rust damage (3 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss five emerging issues in perennial crop production in Kenya (10 marks)
- b) With specific crop examples, describe two symptoms that will help farmers in the diagnosis of the following pests and diseases
- i. Red ring nematode (2 marks)
 - ii. Pink disease (2 marks)
 - iii. Stem and Root Borer (2 marks)

iv. Trunk canker (2 marks)

v. Chafer grubs (2 marks)

QUESTION FIVE (20 MARKS)

a) Describe the production of pyrethrum under the following subheadings

i. Climatic requirements (3 marks)

ii. Cutting back (3 marks)

iii. Fertilization (3 marks)

iv. Harvesting (3 marks)

b) Explain four management practices in macadamia farming you would encourage a farmer to

apply to enhance production (8 marks)