

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN
AGRONOMY AND MASTER OF SCIENCE IN DRYLAND AGRICULTURE**

AGRI 861: PERENNIAL CROPS

STREAMS: MSC

TIME: 3 HOURS

DAY/DATE: TUESDAY 10/12/2024

2.30 P.M – 5.30 P.M.

INSTRUCTIONS:

- **ANSWER ALL QUESTIONS IN SECTION I AND ANY TWO IN SECTION II**

SECTION I: 20 MARKS

- Q1.a). Soil type will influence crop cultivation because different crops prefer different soils. Briefly explain the soil factors affecting perennial crops production. (4 marks)
- b). Elaborate on the three main factors which impact on coffee yield and quality. (3 marks)
- c). Elaborate on why the grafting practice is recommended in macadamia? (3 marks)
- Q2.a).Rate of plant growth and development is dependent upon the temperature surrounding the plant. Briefly explain in reference to perennial crops production, the effects of temperature on plant growth. (4 marks)
- b). Expound on characteristics of perennial plants that differentiate them from annual plants. (3 marks)
- c). Unpruned coffee produces a heavy crop one year and a lighter crop the next season. As an extension agent why would you advice a farmer to prune coffee. (3 marks)

SECTION II: 40 MARKS

- Q3.a).Give an account of why it has been limiting to produce perennial crops in Kenya. (10 marks)
- b). Permaculture is permanent agriculture and permanent culture that involves design and maintenance of agriculturally productive ecosystems. Detail examples of how communities can implement permaculture. (6 marks)
- c). Showcase how permanent frame can be achieved in tea production. (4 marks)

- Q4.a). As an Agricultural Expert why would you continue advising your County government that farmers integrate perennials into their production system. (10 marks)
- b). Organic sugarcane cultivation rejects the burning-off method in favour of a "green harvest". Justify why you would recommend the green harvest practice. (5 marks)
- c). Describe the cashewnut planting methods. (5 marks)
- Q5. a). Perennial crops production is synonymous to permaculture. Give a detail of permaculture design principles which are thinking tools, that when used together, allow us to creatively re-design our environment for sustainability. (10 marks)
- b). Compare the clonal versus the seed pyrethrum propagation methods. (6 marks)
- c). The most important factor in pyrethrum production is the quantity of pyrethrins harvested per unit area. Elaborate on the factors determining the pyrethrin yield. (4 marks)
-