



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

**FIRST YEAR FIRST SEMESTER EXAMINATIONS
MAIN EXAMINATION**

FOR THE DEGREE OF MASTERS. IN:

**AGRICULTURE EDUCATION AND EXTENSION
AGRICULTURAL EDUCATION AND RURAL DEVELOPMENT**

COURSE CODE: ACP 803

COURSE TITLE: PASTURE AND FODDER CROPS

DATE: 18-12-2023

TIME: 8-11 am

INSTRUCTIONS TO CANDIDATES

Answer FOUR questions

SECTION A: Answer any THREE questions (60 Marks)

1. Inadequate quality forage feed is a major constraint to dairy production sub-Saharan Africa.
 - (a) Discuss crop-forage intensifications interventions that can help farmers overcome seasonal quantity and quality feed deficits in smallholder rain-fed agriculture. (12 marks)
 - (b) Briefly describe any FOUR policy related strategies that could facilitated production and adoption of improved forage production on smallholder farmers. (8 marks)

2. Through research Kenya Government developed and recommended improved pasture and fodder crops species/varieties for production in different agro-ecological zones.
 - (a) Discuss the negative and positive impacts of global climate change on the quantity and quality of forage feeds likely to be produced in future. (12 marks)
 - (b) Suggest with reasons adaptation and mitigation strategies that should be employed to minimize the impacts of climate change on quality feed availability. (8 marks)

3. There are several constraints that are faced by smallholder forage crop growers that affect its production, availability, and adoption of improved production practices. Discuss research and extension strategies that can be employed to promote forage crops and their climate resilient cultivation technologies among the stakeholders. (20 marks)

4. Crop byproducts from farms and agro-processing industries can be an important solution to seasonal variation in feed quality and quantity.
 - (a) Discuss constraints for low adoption of crop by-product conservation in sub-Saharan Africa. (10 marks)
 - (b) Describe in detail TWO technologies for conservation and processing crop by-products to reduce bulkiness, improve quality and shelf-life so that this feed resource can transported to save livestock in the semi-arid and arid regions of Kenya. (10 marks)