



MERU UNIVERSITY COLLEGE OF SCIENCE & TECHNOLOGY

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University Examinations 2010/2011

FIRST YEAR, FIRST SEMESTER EXAMINATIONS FOR DIPLOMA IN AGRICULTURAL EDUCATION
AND EXTENSION/DIPLOMA IN AGRICULTURE/CERTIFICATE IN AGRICULTURE

AGR 0120: PRINCIPLES OF CROP PRODUCTION

DATE: DECEMBER 2010

TIME: 1½ HOURS

INSTRUCTIONS: Answer Question *one* which is Compulsory and any other *two* questions

QUESTION ONE – (30 MARKS)

- (a) State and explain briefly two points showing that agriculture plays an important role in the Kenyan economy. (4 Marks)
- (b) Discuss four ways in which soil organism can affect plants. (4 Marks)
- (c) A simple form of hygrometer is known as a psychrometer. Describe a psychrometer and explain how it operates. (4 Marks)
- (d) Describe the farming system referred to as 'ley system' then discuss the change it goes through due to increasing land scarcity. (5 Marks)
- (e) List five advantages of using manure instead of chemical fertilizers. (5 Marks)
- (f) Different types of food processing can be categorized into primary processing and secondary processing. Explain the difference between the two terms and give an example of a product for each type. (4 Marks)
- (g) Describe the agricultural practices referred to as 'pruning' and 'training'. (4 Marks)

QUESTION TWO – (15 MARKS)

- (a) Define the term 'farming system' (2 Marks)
- (b) Differentiate between the farming systems referred to as 'shifting cultivation' and 'fallow system'. (5Marks)
- (c) Discuss two factors which lead the farmers to change their farming system from fallow systems to more permanent types of cultivation. (4 Marks)
- (d) State two major adjustments that farmers have to make in soil fertility management when they change from fallow systems to permanent cultivation farming systems. (4 Marks)

QUESTION THREE – (15 MARKS)

- (a) Define the term ‘ecology’. (2 Marks)
- (b) Mention any three elements of crop ecology and explain how each element affects the crop. (6 Marks)
- (c) Using the FAO agro-ecological zones in the table provided answer the following question:
 - i. Identify all the agro-ecological zones labeled by the table as maize zones and explain if they are the only places where maize should be cultivated. (3 Marks)
 - ii. State two ecological conditions and the potential use for the zone referred to as LM4. (2 Marks)
 - iii. Discuss why management of the natural vegetation by farmers and especially herders is important in the zone UM6. (2 Marks)

QUESTION FOUR – (15 MARKS)

Tillage has historically been a critical step in land preparation before planting of crops.

- (a) What is ‘tillage’? (2 Marks)
- (b) List four objectives of tillage. (4 Marks)
- (c) Explain two technological advances which have made it possible to change from the conventional methods of thorough soil preparation to the current concept of minimum tillage in conservation methods. (5 Marks)
- (d) Write five advantages of conservation tillage over conventional land preparation methods. (5 Methods)

QUESTION FIVE – (15 MARKS)

- (a) Distinguish between sexual and vegetative plant propagation. (2 Marks)
- (b) List three advantages of vegetative plant propagation over sexual propagation. (3 Marks)
- (c) Name and describe five methods of vegetative propagation. (10 Marks)