EMBU UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF THE UNIVERSITY OF NAIROBI)

TRIMESTER EXAMINATIONS 2013/2014

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

AEX 203: PRINCIPLES OF PLANT BREEDING

DATE: AUGUST 8, 2014 **TIME: 8.30 – 10.30AM**

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions.

QUESTION ONE

a) Define the following terms

i.) Plant Breeding (1 mark)

ii.) Domestication (1 mark)

iii.) Natural hybridization (1 mark)

iv.) Polyploidisation (1 mark)

v.) Disease epidemiology (1 mark)

b) Differentiate between

i.) Self-pollination and cross pollination (2 marks)

ii.) Protandry and dioecy (2 marks)

iii.) Genotype and phenotype (2 marks)

c) Write short notes on the following

i.) Benefits of marker assisted selection in plant breeding (5 marks)

ii.) Selfing as an important procedure in crop improvement (5 marks)

iii.) The green revolution (5 marks)

iv.) Biotechnology (4 marks)

QUESTION TWO

a) Explain the role of agriculture in economic development of Kenya (5 marks)

b) Explain any five (5) objectives of plant breeding programmes (5 marks)

c) Describe the four (4) types of seed classes that are generally recognized in seed certification (8 marks)

d) Define the term gene-flow as applied in plant breeding (2 marks)

QUESTION THREE

a) Explain five (5) mechanisms that enhance cross pollination in plants (5 marks)

b) Describe mass selection as a technique utilized in breeding of crops (5 marks)

c) Define

i) Tissue culture (2 marks)

ii) Discuss the benefits of this technique in plant propagation (8 marks)

QUESTION FOUR

Explain the term emasculation and explain the different techniques that are utilized to achieve it. (20 marks)

QUESTION FIVE

a) Explain any five (5) benefits of using quality seed in breeding programmes (5 marks)

b) What is the economic importance of maize in Kenya (5 marks)

c) Discuss the benefits of genetic improvement in maize in Kenya (5 marks)

c) Explain how mechanical mixtures lead to deterioration of genetic purity of seeds (5 marks)

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