



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

INSTITUTIONAL BASED PROGRAMME (IBP) DECEMBER SESSION

EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN ENTEGRATED SOIL FERTILITY MANAGEMENT

KRM 505: SOIL WATER PLANT RELATIONS

DATE: Wednesday, 27th April, 2011

TIME: 9.00a.m. – 12.00noon

INSTRUCTIONS: Answer Question **ONE** and any other **THREE** questions. Time 3 hrs

1. (a) Differentiate between the following
 - (i) Cohesion and Surface tension
 - (ii) Capillary water and Available water
 - (iii) Soil porosity and Soil aeration
 - (iv) Infiltration and Drainage
 - (v) Matric potential and Osmotic potential. (10 Marks)
- (b) Explain the effects of soil moisture on plant growth. (5 Marks)
- (c) Discuss briefly the factors affecting the amount of moisture available to plants. (5 Marks)
- (d) State **five** (5) factors affecting the infiltration rate. (5 Marks)
- (e) Name **three** (3) methods of measuring soil water potential. (3 Marks)
- (f) What are the main types of water movement in soils. (2 Marks)

2. Discuss the effect of soil factors on root growth. (10 Marks)

3. (a) What are the factors affecting soil temperature? (4 Marks)
(b) Explain how soil temperature affects plant growth. (6 Marks)

4. State and explain the mechanisms by which plants adapt to water stress. (10 Marks)

5. Discuss the factors affecting ET crop. (10 Marks)