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**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2015/2016**

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN AGRICULTURE

**BIO 0111: GENETICS AND PLANT BREEDING**

**DATE: NOVEMBER 2015 TIME: 11/2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Genetics is important in Agriculture. Discuss (4 Marks)
2. Polyplody is a condition important in plants but rare in animals. Describe the reasons behind it. (4 Marks)
3. Differentiate between meiosis and mitosis cell division in an organism (5 Marks)
4. Explain the effect of mutation in an organism (4 Marks)
5. Briefly describe the homologous chromosomes (3 Marks)
6. Discuss the mechanism that influence cross pollination in plants (6 Marks)
7. Describe briefly the importance of tissue culture as a tool for crop improvement (4 Marks)

**QUESTION TWO (15 MARKS)**

1. Describe the importance of mitosis cell division in an organism. (3Marks)
2. With the aid of diagrams describe the translocation and deletion structural changes of a chromosome (6 Marks)
3. Discuss the pure line method of crop improvement stating its importance (6 Marks)

**QUESTION THREE (15 MARKS)**

1. Discuss the importance of Genetic engineering in Agriculture. (8 Marks)
2. Describe one type of mutation importance in crop improvement (5 Marks)
3. What is Parthenogenesis (2 Marks)

**QUESTION FOUR (15 MARKS)**

1. Describe briefly the conventional method of plant breeding. (5Marks)
2. Discuss the mechanisms that promote self pollution (6 Marks)
3. Briefly describe the importance of meiotic cell division in an organism (4 Marks)