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# **UNIVERSITY OF KABIANGA**

**UNIVERSITY EXAMINATIONS**

**2015/2016 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY**

**COURSE CODE: FOR 322**

**COURSE TITLE: TREE GENETICS AND IMPROVEMENT**

***DATE: 14TH APRIL, 2016* *TIME: 9 A.M- 12 P.M***

**INSTRUCTIONS:**

***ANSWER ALL QUESTIONS IN SECTION A AND ANY OTHER TWO QUESTIONS IN SECTION B.***

**SECTION A: (30 marks)**

1. Define the following terms: (4 marks)
2. Phenotype.
3. Rotation age.
4. Seed orchard.
5. Forest tree improvement.
6. Write short notes on the following concepts of tree breeding.
7. Biotic resistance. (2 marks)
8. Mutation. (2 marks)
9. Tree provenance. (2 marks)
10. State any **five** advantages of using exotic tree species in forestry. (5 marks)
11. Briefly describe how you can apply the concepts of simple mass selection to improve timber yield in cypress trees. (5 marks)
12. State the advantages of tree improvement through genetic breeding. (5 marks)
13. Briefly describe the structure of DNA. (5 marks)

**SECTION B: (40 marks)**

**Answer any two questions in this section. All questions carry equal marks**

1. Discuss selection for disease resistance in trees. (20 marks)
2. Discuss the mating designs applied in tree improvement. (20 marks)
3. Discuss the concept of natural selection in tree improvement. (20 marks)