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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2018/2019 ACADEMIC YEAR FOUR**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**

**FOR THE DEGREE OF BACHELOR OF EDUCATION**

**COURSE CODE: ZOO 400**

**COURSE TITLE: ADVANCED GENETICS**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 04/02/2020 TIME: 09.00-11.00 AM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of TWO (2) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. Explain how biodiversity is applied in animal breeding **[6 marks]**
2. Differentiate between incomplete dominance and co-dominance **[6 marks]**
3. Describe application of nf Hardy –Weinberg principle in genetics **[5 marks]**
4. Define the following terms as used in genetics: mutation, genotype, alleles, population, phenotype and homologous chromosomes **[8 marks]**
5. Highlight five sex determination mechanisms in animals **[5 marks]**

**QUESTION TWO**

1. Highlight five differences between DNA structure and RNA structure **[5 marks]**
2. Discuss aneuploidy in human beings **[15 marks]**

**QUESTION THREE**

* 1. Explain factors that alter gene frequency in a population **[10 marks]**
  2. Dihybrid inheritance involve inheritance of two traits. A cross between a round, green pod and wrinkled, yellow pod gave rise to all offspring having round, green pod. Using punnet square determine the genotypes of the F2 generation when the f1 (offspring were self crossed. **[10 marks]**

**QUESTION FOUR**

Examine Mendel’s work that resulted to his first and second law of inheritance **[20 marks]**

**QUESTION FIVE**

1. Describe protein synthesis process in prokaryotes **[10 marks]**
2. Discuss five disadvantages of inbreeding **[10 marks]**