CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN ANIMAL HEALTH AND PRODUCTION

ANSC 342: BIOTECHNOLOGY IN ANIMAL BREEDING

STREAMS: BS.c (ANSC) **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 5/12/2018 **8.30 A.M - 10.30 A.M.**

INSTRUCTIONS:

- **This examination has to sections A and B**
- **Attempt ALL Questions in Section A and any TWO Questions in Section B**
- **Mobile phones are NOT ALLOWED in the examination room**

SECTION A: ATTEMPT ALL QUESTIONS - [30 MARKS]

1. Outline the role of meiosis in maintaining the chromosome number across generations. [3 Marks]
2. State the structural differences between purines and hyprimidines. [1 Mark]
3. With the aid of a diagram, illustrate the structure of a nucleotide. [3 Marks]
4. Describe the roles of the three RNAs found in eukaryotes. [6 Marks]
5. State 3 RNA polymerase found in eukaryotes and their roles. [3 Marks]
6. Describe four types of chromosomal mutations. [8 Marks]
7. Differentiate between a molecular marker and a QTL. [2 Marks]
8. Define the following terms;
   (a) DNA fingerprinting
   (b) Semen sexing [4 Marks]

SECTION B: ATTEMPT ONY TWO QUESTIONS

9. DNA is key in heredity and growth.

   (a) With the aid of diagrams, illustrate the concept of semi-conservative DNA replication. [10 Marks]

   (b) With aid of a diagram, illustrate the transcription process. [10 Marks]

10. Polymorphism is due to the presence of gens in intermediate frequencies. Describe five factors that account for polymorphism. [20 Marks]

11. Write short notes on the following;
    (a) Marker Assisted Selection
    (b) Marker Assisted Introgression
    (c) Genomic Selection
    (d) Phenotypic Selection [20 Marks]

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