Course Title: Elementary Topics in Animal Breeding
Course Code: ANP 307
Credit Unit: 2
Time Allowed: .2 Hours

INSTRUCTION:
Answer Compulsory question 1 (25 marks) and any 3 questions (15 marks each)

Question One
    a)   Define the following terms:
    i.   Gene
    ii.   Allele
    iii.   Genotype
    iv.   Phenotype
    v.   Dominant
    vi.   Recessive
    vii.   Hybrid.
    viii.   Homozygote
    ix.   Heterozygote   **9 marks**
b) Highlight three (3) reasons why Robert Bakewell is considered the founder of systematic modern breeding   **3 marks**
c) Outline five (5) challenges in breeding animals for disease resistance **10 marks**
d) State three (3) advantages of breeding animals for disease resistance **3 marks**

Question Two
a) Define Genetics and Punnet squares. 2 marks
b) State three (3) reasons why Mendel's research work is unique compared to the other early theories. **3 marks**
c) State four (4) the implications of Mendel's work. **4 marks**
d) Outline three (3) differences between Monohybrid and Dihybrid crosses. **6 marks**

Question Three
a) Mention five (5) differences between the X-Y and X-0 systems of sex determination? **10 marks**
b) Briefly explain five (5) ways to manage lethal genes in a dairy herd. **5 marks**

Question Four
a) Give six (6) differences between quantitative and qualitative traits. **12 marks**
b) Define the following terms mean, variance and standard deviation. **3 marks**

Question Five
a) Define segregation. **1 mark**
b) Give the meaning of penetrance and expressivity. **4 marks**
c) Explain the two (2) methods of estimating heritability. **6 marks**
d) State two (2) properties of heritability. **4 marks**

Question Six
a) What is the implication of high and low repeatability in animal breeding? **4 marks**
b) State the explanation of inheritance by
   i.   Hippocrates
  ii.   Aeschylus,
 iii.   Microscopist Anton van Leeuwenhoek **6 marks**
c) Explain Genetic Source of Variation **5 marks**