



## QUESTION ONE

- a. Define the following terms as used in Plant and Animal Breeding. (10 marks)
  - i. Bioinformatics (2 marks)
  - ii. Genetically Modified Organisms (2 marks)
  - iii. Cloning (2 marks)
  - iv. Inbreeding depression (2 marks)
  - v. Hybrid vigor (2 marks)
- b. Listed below are breeding technologies used in the selection of traits of interest in plant. Briefly describe how each of these methods works.
  - i. Marker assisted selection (3 marks)
  - ii. Quantitative trait loci (3 marks)
  - iii. Tissue culture (2 marks)
  - iv. Transgenics (2 marks)
- c. List three centers commonly known as sources of plant germplasm (3 marks)
- d. What is the importance of breeding in plants and livestock? (5 marks)
- e. List two advanced breeding techniques used to improve livestock productivity. (2 marks)

## QUESTION TWO

Discuss the implications of Biotechnology Regulation for International Trade and the adoption of Genetically Modified Organisms (GMO's) and Gene Edited (GE) agricultural commodities. (20 marks)

## QUESTION THREE

Write short notes on five breeding strategies employed in the improvement of livestock production. (20 marks)

## QUESTION FOUR

Discuss the nature and evolution of plant and animal breeding technologies over time. (20 marks)

## QUESTION FIVE

Discuss the trends and strategies for incorporating new methodologies in plant and animal breeding for the future of sustainable agriculture. (20 marks)