



(University of Choice)  
**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**  
**2021/2022 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER EXAMINATIONS**  
**— MAIN EXAMINATION —**

**FOR THE DEGREE OF B.Sc. IN:**  
**AGRICULTURE AND BIOTECHNOLOGY AND**  
**AGRICULTURAL EDUCATION AND EXTENSION**

**COURSE CODE: AAP 302**

**COURSE TITLE: RUMINANT AND NON RUMINANT PRODUCTION**

**DATE: 27<sup>TH</sup> APRIL, 2022**

**TIME: 8-10 AM**

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**INSTRUCTION TO CANDIDATES**

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

**TOTAL MARKS=70**

**TIME: 2 HOURS**

*MMUST observes ZERO tolerance to examination cheating*

*This Paper Consists of 2 Printed Pages. Please Turn Over.*

**SECTION A (30 MKS)**

1.
  - a) Describe the digestive functions of the rumen chamber of the ruminant animal(4 Marks)
  - b) Describe any three types of integrated fish farming system (4Marks)
  - c) Describe the possible causes of supercedure in a bees colony (3 Marks)
  - d) Describe two dances associated with food in bees and describe the significance of each of the dances(4Marks)
  - e) Describe potential ingredients for making artificial colostrum for the piglets(5 Marks)
  - f) Describe traits with high heritability in goats (5 Marks)
  - g) Describe the probable causes of iron deficiency in piglets (2Marks)
  - h) Describe the effect of accumulation of manure on the pond bottom in fish rearing (3Marks)

**SECTION B (40MKS)**

2. Describe the factors including environmental requirements to consider in pond culture and earth fish culture(20 marks)
3.
  - a.) Describe how grafting is carried out in bees (5 Marks)
  - b.) Describe the factors to consider during siting of an apiary(15marks)
4. Describe the factors that affect litter size in gilts and sows (20 marks)