



**FACULTY OF NATURAL RESOURCES MANAGEMENT AND
AGRICULTURE**

DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH

BACHELOR OF SCIENCE HONOURS DEGREE IN ANIMAL SCIENCE

MEAT SCIENCE AND TECHNOLOGY (LAS4106)

FINAL MAIN EXAMINATION

Semester I, Segment 2

November 2024

Time Allowed : 3 hours
Special requirement : None
Examiner : Mr. B Mpala

Instructions to Candidates:

1. This paper consists of six questions, answer **ALL** questions in **Section A** and **ANY TWO** in **Section B**.
2. Marks for each question are shown in brackets. Where a question has subdivisions, the marks for each subdivision are given.
3. Illustrate your answer, where applicable, with large clearly labelled diagrams.

MARK ALLOCATION PER SECTION	MARKS
SECTION A	60
SECTION B	40
TOTAL ATTAINABLE MARKS	100

This paper consists of three printed pages including this one.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION 1

- a) Differentiate the following:
- i. Chevron and venison. [2]
 - ii. Luncheon meat and meat patties. [2]
 - iii. Meat balls and meat nuggets. [2]
 - iv. Cultivated meat and meat analogs. [2]
 - v. Dry and wet aged meat. [2]
- b) Stepwise, describe the primary, secondary and tertiary processing of broilers. [10]

QUESTION 2

- a) Differentiate between myofibrillar, sarcoplasmic, and stromal proteins, giving two examples of each. [12]
- b) Discuss the roles played by each group of muscle proteins in (2a above) in determining the postmortem technological qualities of meat. [8]

QUESTION 3

- a) Explain the series of events that lead to the occurrence of Pale Soft Exudative (PSE) and Dark Firm Dry (DFD) conditions in meats. [12]
- b) Discuss measures that can be implemented to reduce the incidences of PSE in pork and DFD in beef. [8]

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION 4

- a) Compare food spoilage and food poisoning in meat and meat products, providing examples of the microorganisms involved. [8]
- b) A farmer realised that pork spoil faster than beef. Summarize the factors that predispose pork to faster spoilage. [12]

QUESTION 5

- a) Describe intermediate moisture meats (IMM) and the techniques involved in processing IMM. [6]

- b) Sodium nitrates and nitrites are used to stabilize the appealing colour and impart the distinctive flavour in cured meats. Using equations summarize colour reactions of cured meats. [6]

- c) Discuss the public health concerns associated with the use of additives, such as nitrites, in meat processing technology, and provide alternative solutions. [8]

QUESTION 6

- a) List four methods commonly used to slaughter animals for human consumption. [4]

- b) Discuss the classification and grading of beef carcasses from cattle slaughtered through officially legislated channels in Zimbabwe. [16]