

UNIVERSITY OF FORT HARE

**MEAT SCIENCE
AGA 421**

DEGREE EXAMINATIONS

SUPPLEMENTARY EXAMINATIONS

JANUARY 2019

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Time: 3 HOURS

Subject: AGA 421

Marks: 100

This paper consists of 3 pages including the cover page

Internal Examiners

**Mr. M. Mpayipheli
Prof. V. Muchenje**

External Examiners

Prof. A. Hugo

INSTRUCTIONS

Answer all questions

It is in your best interest to write clearly and legibly

Question 1 (30 marks)

1. Describe any 5 factors that determine meat consumption patterns. (10)
2. Growth promoting compounds used in the beef cattle industry are classified into two broad categories, namely anabolic steroids and β -adrenergic agonists. By giving examples where possible, briefly discuss the differences between these two classes. (10)
3. Describe the effects of the following dietary factors or metabolic modifiers on quality and nutritional value of meat:
 - a. Magnesium (2)
 - b. Selenium (2)
 - c. Vitamin E (2)
4. Differentiate between hyperplasia and hypertrophy (4)

Question 2 (30 marks)

1. Discuss the process of converting muscle to meat and explain how does stress prior to slaughter influence composition and quality of meat. (20)
2. With the aid of the skeletal muscle diagram, differentiate between a contracted and relaxed sarcomere length of skeletal muscles. What are the implications of the two mechanisms to meat tenderness? (10)

Question 3 (20 marks)

1. Describe Carbon dioxide (CO₂) stunning method and explain why it is not always recommended for stunning livestock before bleeding. (4)
2. It is recommended that neck cutting and bleeding must be done within 1 minute of stunning in cattle. Explain how bleeding of animals during slaughter improve meat safety and quality? (4)
3. Explain the difference between calpains and calpastatins. (4)
4. Write short notes on the following:
 - a. Electrical stimulation (4)
 - b. Dark Firm and Dry
 - c. iPale Soft and Exudative (3)
 - d. Proteolytic enzymes (3)

Question 4 (20 marks)

1. Describe any three specific microorganisms of concern in meat products. In your description, include its symptoms and methods of prevention. {9}
2. List three methods that can be used to measure meat colour. {3}
3. Describe three general approaches to using human sensory panels for meat product assessment and briefly discuss how each is conducted. {6}
4. List any 2 natural antioxidants used in processed meat products {2}

END OF PAPER...
