



GWANDA STATE UNIVERSITY
FACULTY OF LIFE SCIENCES
DEPARTMENT OF ANIMAL SCIENCE
AGRICULTURAL BIOCHEMISTRY 11
LAS 1203

End of Semester Final Examination Paper

November 2019

This examination paper consists of 3 pages

Time Allowed: **3 hours**
Total Marks: **100**
Special Requirements: **None**
Examiner's Name: **Mr R. Ndlovu**

INSTRUCTIONS TO CANDIDATES

1. Marks for each question are shown in brackets. Where a question has subdivisions, the marks for each subdivision are given.
2. Where applicable, illustrate your answer with large clearly labelled diagram/s.
3. This paper contains SIX questions. Answer **ANY FIVE** questions

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Question 1

- a) State **four** major roles of nucleotides. [4]
- b) There are two aromatic amine structures used for the bases, **purines** and **pyrimidines**.
 - i) Draw the structure of purine and pyrimidine. [4]
 - ii) For each structure list the corresponding bases. [5]
- c) Outline the catabolism of purines. [7]

Question 2

- a) Draw a fully labelled structure of a neuron. [7]
- b) What are the functions of glial cells. [5]
- c) What are neurotransmitters. [2]
- d) List **six** characteristics of a neurotransmitter. [6]

Question 3

- a) State **four** different biological functions of muscle in farm animals. [4]
- b) List **three** processes that muscle cells use to make ATP when energy is needed for muscle contraction. [3]
- c) What structural features do red muscle have that explain why these muscle fibres mainly use Krebs cycle and oxidative phosphorylation to synthesis ATP. [5]
- d) Write short notes on the following:
 - i) Metabolism in white muscle fibres. [4]
 - ii) Metabolism in red muscle fibres. [4]

Question 4

- a) The various functions performed by hormones may be grouped into **four** major categories. List those four categories. [4]

b) With the aid of a diagram, explain the mechanism of action of steroid hormones. [16]

Question 5

Compare and contrast T-cells and B-cells in terms of their characteristics and functions. [20]

Question 6

Briefly outline the benefits and concerns of the recombinant DNA technology applications in agriculture. [20]

END OF QUESTION PAPER

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