UNIVERSITY OF JOHANNESBURG

FACULTY OF SCIENCE

DEPARTMENT OF ZOOLOGY

MODULE **PHS2A01**

CAMPUS **APK**

EXAM **JUNE 2016**

DATE: 7 June 2016 **SESSION** **12:30**

ASSESSOR(S) **PROF GM WAGENAAR**

INTERNAL MODERATOR **DR JC VAN DYK**

DURATION **2 HOURS** **MARKS** **100**

NUMBER OF PAGES: 3 PAGES

INSTRUCTIONS: **Section A and Section B should be done in separate exam scripts. Answer all the questions.**

SECTION A ANSWER THIS SECTION IN A SEPARATE EXAM SCRIPT

QUESTION 1

1.1 Discuss the importance of pH balance and the role of buffers in body fluids by referring to suitable examples. (5)

1.2 Explain the importance of a negative feedback mechanism in the body by referring to the interaction of the different systems when the plasma calcium decreases below 8.5 mg/dL (no diagrams required). (10)

1.3 List the functions of the plasma membrane and describe the structural features that enable each of these functions. (7)

SUBTOTAL 22

QUESTION 2

2.1 Distinguish between:

(a) Primary active transport (3)

(b) Secondary active transport (3)

2.2 Explain the benefit of having some cellular organelles enclosed by a membrane similar to the plasma membrane. (6)

2.3 Define each of the following terms:

(a) metastasis (2)

(b) oncogenes (2)

(c) carcinogen (2)

SUBTOTAL 18

QUESTION 3

3.1 Explain the effect that a lack of Vitamin C in the diet has on the connective tissue in the skin. (4)

3.2 Describe the interaction between sunlight and Vitamin D_3 in the skin, with the aid of a diagram. (6)

SUBTOTAL 10

SECTION B – ANSWER THIS SECTION IN ANOTHER EXAM SCRIPT

QUESTION 4

4.1 Discuss the effects of nutrition on bone development. In your answer you should refer to the effect on the structure of the different bone cells. (10)

4.2 Explain intramembrane ossification which starts during the eighth week of embryonic development. (10)

SUBTOTAL 20

QUESTION 5

5.1 Describe the levels of organisation of skeletal muscle. (5)

5.2 Describe the connective tissue layers associated with skeletal muscle tissue. (6)

5.3 Explain how would severing the tendon attached to a muscle affect the muscle's ability to move a body part? (4)

5.4 Discuss the importance of a high Ca^{2+} concentration in a resting sarcomere. (5)

5.5 Explain the concept "sliding filament theory" in detail. (10)

SUBTOTAL 30

TOTAL 100
