NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SSC1108

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF SPORTS SCIENCE AND COACHING

THEORY: SSC1108: PRINCILES OF HUMAN PHYSIOLOGY

JANUARY 2011

3 HOURS (100 MARKS)

INSTRUCTIONS

Answer 4 questions only. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large clearly labeled diagrams.

1. a) Write short notes on:
   (i) Smooth muscle [3 marks]
   (ii) Cardiac muscle [3 marks]
   (iii) Skeletal muscle [3 marks]

   b) Describe the mechanism of muscle contraction according to the sliding filament theory. [16 marks]

2. A nerve impulse –an electrical charge-is the signal that passes from one neuron to another.

   a) Describe the general structure of an efferent neuron [5 marks]

   b) Describe the propagation of an action potential along the axon and the factors that affect its velocity. [20 marks]

3) Compare and contrast the sensory and motor divisions of the peripheral nervous system. [25 amrks]

4. a) What is an endocrine gland? [3 marks]

   b) Briefly outline the major endocrine glands, their hormones and the specific action of those hormones. [15 marks]

   c) With reference to important nutrients, describe the hormonal regulation of metabolism during exercise. [7 marks]

5. Write short notes on :

a)	The cardiac cycle	[10 marks]
b)	Stroke volume	[5 marks]
c)	Ejection fraction	[4 marks]
c)	Cardiac output	[3 marks]
d)	Blood pressure	[3 marks]

6. a) Describe the process of inspiration and expiration. [12 marks]

b) Outline the journey of an oxygen molecule from the nostrils to the mitochondrion. [13 marks]

END OF EXAMINATION