

# NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SSC2206

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF SPORTS SCIENCE AND COACHING

## **THEORY: SSC2206: EXERCISE PHYSIOLOGY AND BIOCHEMISTRY**

MAY 2012

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) Discuss major chronic adaptations to aerobic exercise. [15 marks]  
b) Compare and contrast the use of treadmills and cycle ergometers in the measurement of physiological variables. [10 marks]
2. In muscular activities that require near maximal force production such as sprint running or swimming, much of the energy needs are met by the ATP-PCr system and the anaerobic breakdown of glucose. Explain:
  - a) Adaptations in the ATP-PCr system. [12 marks]
  - b) Adaptations in the glycolytic system. [13 marks]
3. Fluid balance is critical during exercise. The endocrine system plays a major role in monitoring fluid levels and correcting imbalances. Discuss. [25 marks]
4. a) Discuss excess postexercise oxygen consumption (EPOC). [15 marks]  
b) Explain lactate threshold. [13 marks]
5. Briefly describe the following:
  - a) Principle of individuality. [5 marks]
  - b) Exercise physiology [5 marks]
  - c) Sports physiology [5 marks]
  - d) Sport Science [5 marks]

e) Submaximal exercise testing. [5 marks]

6. Discuss metabolic adaptations to training with reference to :

a) Gender. [10 marks]

b) Training intensity. [15 marks]

**END OF EXAMINATION**