NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SSC4209

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF SPORTS SCIENCE AND COACHING

THEORY: SSC4209: ADVANCED SPORTS STUDIES

AUGUST 2009

3 HOURS (100 MARKS)

INSTRUCTIONS

Answer **four** 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. Describe/explain the following concepts/terms as they are used in Kinanthropometry.
   a) Conventions and landmarks (5 marks)
   b) Anthropometric instruments (5 marks)
   c) Specifications for obtaining body mass and stretch stature (5 marks)
   d) Somatotypes (5 marks)
   e) Subscapular and supraspinale skinfolds. (5 marks)

2. a) Define obesity, overweight and under weight. (9 marks)
   b) Explain why exercise is an important component of weight loss and weight gain programs when compared to other methods. (16 marks)

3. Anthropometry is a relatively inexpensive method for determining body composition. However, it requires a high level of precision.
   a) Discuss five(5) major sources of error in kinanthropometry/ anthropometry that could vitiate the application of its results. (15 marks)
   b) As a level one kinanthropometrist, how do you think you can minimize these sources of error? (10 marks)

4. As a Sports Science specialist, discuss the various ways you could apply kinanthropometry to sports focusing on the important variables you may want to focus on. (25 marks)

5. a) Discuss the issues to be observed in skinfold measurement to ensure validity and reliability. (10 marks)
   b) i) Give an exposition of the strategies you would recommend to a coach to help her/him develop healthy fat levels for her/his athletes. (10 marks)
      ii) A coach wants his female gymnast to attain a percentage body fat goal of 16%. Her current body weight is 60kg and her percentage body fat is 21%. Calculate how much the athlete has to lose in body weight to attain the desired percentage body fat. (5marks)

6. i) Calculate the percentage body fat of an individual who has a body mass of 50kg and weighs 2kg submerged in water at $4^{o}C$. Use William Siri's equation (%body fat = (4.95 / body density) – 450. (2 marks)

ii) Explain the principles of the basis of determining the volume of the body from water. (4 marks)

iii) Discuss the limitations of densitometry in determining percentage body fat. (19 marks)

END OF EXAMINATION