

**BINDURA UNIVERSITY OF SCIENCE EDUCATION**  
**FACULTY OF SCIENCE AND ENGINEERING**  
**DEPARTMENT: SPORTS SCIENCE**  
**MASTER OF SCIENCE DEGREE IN SPORTS SCIENCE**  
**SS 510 KINANTHROPOMERTRY**

**DURATION: 3 HOURS**

**TOTAL MARKS: 100**

**(Plus 15 Minutes for Practical Preparation/Case Reading)**

**INSTRUCTIONS TO CANDIDATES**

Section A is **compulsory**.

Answer **three** questions from Section B.

22 JUN 2023

**Section A**

1. a) Distinguish between anthropometry and kinanthropometry **(6 marks)**
- b) You are approached by soccer coach and a boxing coach. Discuss how you could convince them to apply kinanthropometry in their coaching programmes. **(20 marks)**
- c) Explain key components to consider under “the subject” in anthropometry. **(14 marks)**

**Section B.**

- 2 The main purpose of skinfold measurements is to estimate general fatness and the distribution of subcutaneous adipose tissue.
  - a) Define and describe the measurement of the triceps skinfold, the iliac crest skinfold and the front thigh skinfold. **(12 marks)**
  - b) Explain the main sources of error in the prediction fat from skinfold data. **(10 marks)**
3. Hydrodensitometry is widely used in determining body composition in sports science settings.
  - a) Describe the underlying principles and basic assumptions of hydrodensitometry. **(5 marks)**
  - b) Table 1

variable	Thabo	Eric
Height	190cm	190cm
Weight of on land	93kg	93kg
Underwater weight	6.5kg	5.0kg
%BF	10.5%	18.4%

Using the information table 1 above to calculate the subjects:

- i) Body density (3 marks)
- ii) Fat weight (2 marks)
- iii) Fat free weight (2 marks)
- c) analyse the sources of error in underwater weighing. (8 marks)

4. Ssecular tendencies have been shown to be associated with human body form changes over time. Discuss the effects of secular tendencies for ergonomics, health and sport ( **20 marks**)

5. Body composition of athletes has been shown to affect sport performance in one way or another. With reference to a gravitational sport, an aesthetic sport and a weight class sport, analyse the relationship between body composition and sport performance. **(20 marks)**

6. a) State the four ways used to determine the Hearth-Carter anthropometric somatotype. **(4 marks)**

b) Analyse the application of somatotyping in elite sport. **(16 marks)**

**END OF PAPER**