NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SSC3103

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF SPORTS SCIENCE AND COACHING

CONVENTIONAL/BLOCK RELEASE PROGRAMME

SSC3103: LABORATORY TECHNIQUES IN SPORTS SCIENCE

EXAMINATION QUESTION PAPER

DECEMBER 2024

This examination question paper consists of 2 pages

TIME ALLOWED:	3 HOURS
TOTAL MARKS:	100
SPECIAL REQUIREMENTS:	NIL
EXAMINER'S NAME:	MRS P MASAGA

INSTRUCTIONS

1) Answer any 4 questions.
2) Each question carries 25 marks.
3) Where a question contains subdivisions, the mark value for each subdivision is given in brackets.

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

1. Discuss the importance of maintaining a safe working environment in a laboratory, including measures to prevent accidents, manage emergencies, and promote a culture of safety. **(25 Marks)**
2. Describe the impact of sports technology on athlete monitoring and performance analysis in sports science, including benefits, limitations, and future directions. **(25 Marks)**

3. Critically evaluate the ethical considerations surrounding the use of wearable technology in sports science, including data privacy, informed consent, and player tracking. **(25 Marks)**
4. Examine the factors that determine the effectiveness of a physiological test of athletic performance. **(25 Marks)**

5. a. Describe the principles and limitations of using Body Mass Index (BMI) to assess body composition in athletes, including:

   i) Definition and calculation of BMI **(3 marks)**

   ii) Explanation of BMI categories (e.g., underweight, normal weight, overweight, obese) **(2 marks)**

   iii) Discussion of limitations (e.g., muscle mass, body density, ethnic variations) **(5 marks)**

   b. Critically evaluate the use of BMI as a measure of body composition in athletes, considering muscle mass and athletic build. **(15 marks)**

6. Compare and contrast the accuracy, reliability, and practicality of hydrostatic weighing, dual-energy X-ray absorptiometry (DXA), and bioelectrical impedance analysis (BIA) for measuring body composition. **(25 Marks)**

END OF EXAMINATION