NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SSC2104

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF SPORTS SCIENCE AND COACHING

BACHELOR OF SCIENCE HONOURS DEGREE IN SPORTS SCIENCE AND COACHING

CONVENTIONAL/BLOCK RELEASE PROGRAMME

SSC2104: BIOMECHANICS

SPECIAL EXAMINATION QUESTION PAPER

MARCH 2025

This examination question paper consists of 2 pages

TIME ALLOWED:	3 HOURS
TOTAL MARKS:	100
SPECIAL REQUIREMENTS:	NIL
EXAMINER'S NAME:	MR E M TAPERA

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. Describe the mechanical properties of some equipment and facilities that are used in the sport of your choice, explaining how these properties enhance the performance in the sport   (25 marks)

2. a)   Discuss the ideal standing posture in man   (5 marks)

   b)   Describe any three major posture abnormalities in humans   (20 Marks)

3. Players in a certain soccer team have difficulties in taking the penalty shot. Some of their attempts results in the ball rising over the bar, others in the ball going to the left of the goal post. Other attempts have little force to challenge the goalkeeper, and other attempts have no speed to challenge the goalkeeper.

   Using your knowledge of sports biomechanics, identify the causes of the shooting patterns described above, suggesting possible remedies for each   (25 marks)

4. a) Describe Newton's three Laws of Linear Motion using examples from sports   (10 marks)

   b) Explain how one can apply Newton's three Laws of motion to enhance performance in any ONE of the following sports   (15 marks)

        i)   Soccer

        ii)   Tennis

        iii)   Netball

        iv)   Cricket

        v)   Rugby

5. Describe how the following are conducted:

        a) a posture analysis   (15 marks)

        b) a gait analysis   (10 marks)

6. Explain the following biomechanical terms using examples from sports:

        a) Momentum   (5 marks)
        b) Vector   (5 marks)
        c) Scalar   (5 marks)
        d) Force   (5 marks)
        e) Kinematics   (5 marks)

END OF EXAMINATION