

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY



SSC5111

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF SPORTS SCIENCE AND COACHING

MASTER OF SCIENCE SPORTS SCIENCE

SSC5111: PHYSIOLOGY AND BIOCHEMISTRY OF PHYSICAL ACTIVITY

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: Dr. D. Makaza

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. Illustrate your answer where appropriate with large, clearly labelled diagrams.

MARK ALLOCATION

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

1. The process of energy release caters for the demands of physical activity.
 - a. (i) Identify the three key energy systems. **(3 marks)**
 - (ii) Explain each of these energy systems and their influence on performance. **(17 marks)**
 - b. Athletes participating in basketball will depend mostly on one of the energy systems in (a).
 - (i) State the energy system. **(1 marks)**
 - (ii) Identify which game circumstances occurring in a typical basketball match would allow for a partial recovery of the system in (i) **(4 marks)**
2. High altitude training has been used by some athletes to enhance performance. As a team sports scientist you are asked to prepare a team for high altitude training. Explain the contents of your briefing to athletes before they go for high altitude training. **(25 marks)**
3. a. Define maximal oxygen consumption **(2marks)**
 - b) Discuss how factors related to the cardiovascular system, respiratory system and skeletal muscle affect maximal oxygen consumption. **(23 marks)**
4. . Discuss the six factors which have been suggested to cause Excess Post exercise Oxygen Consumption (EPOC). **(25 marks)**
5. Analyze the different ways in which muscles can respond to resistance and aerobic training. **(25 marks)**
6. The imposition of significant exercise load upon a human in extreme temperature environments is strenuous and potentially dangerous. Discuss this under exercise in hot and cold environments. **(25 marks)**

END OF EXAMINATION