BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT: SPORTS SCIENCE

MASTER OF SCIENCE DEGREE IN SPORTS SCIENCE

SS502: PHYSIOLOGY AND BIOCHEMISTRY OF PHYSICAL ACTIVITY

DURATION: 3 HOURS TOTAL MARKS: 100

INSTRUCTIONS TO CANDIDATES

Section A is **compulsory.**

Answer **three** questions from Section B.

Section A

1. The process of energy release caters for the demands of physical activity.

a) Justify key energy systems that can be associated with high jump, the 800m event and the marathon. **(9 marks)**

(b) Explain how the energy systems identified in (a) can be modified through training to influence performance. **(15 marks)**

(c) Athletes participating in basketball will depend mostly on one of the energy systems in (a)

(i) State the energy system and justify. **(5 marks)**

(ii) Identify with justification any three game circumstances occurring in a typical basketball match that would allow for a partial recovery of the system in (a) **(5 marks)**

(iii)Explain the advantages that the opportunities identified in (ii) above, have on the performances of these athletes. **(6 marks)**

Section B.

2. A training programme incorporating long duration and low intensity bouts of activities and moderate resistance training results in specific adaptive morphological and metabolic changes. Analyze how identified sporting disciplines can be used to justify the above statement. **(20 marks)**

3. 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. **(20 marks)**

4. Peter participates in a road race 3km long. The completes the last stage of the race by sprinting for a 100m. Analyze Peter's major sources of energy supply throughout the race. **(20 marks)**
5. The endocrine system is a slower- acting control system that interacts with and supports the role of the neural system in maintaining homeostasis in the face of an exercise challenge. Mary engages in high intensity short duration bouts of training and has been on a training for six months. Explain Mary's endocrine activity in a typical session and her endocrine adaptation after six months. **(20 marks)**
6. With reference to aerobic and anaerobic athletes, discus the six factors which have been suggested to cause Excess Post exercise Oxygen Consumption (EPOC). **(20 marks)**

END OF PAPER