

## **SPORT AND EXERCISE SCIENCE**

**Time Allowed – 1.5 hours**

**Please answer TWO questions – no more than ONE from any one section**

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### **PSYCHOLOGY**

1. Explicitly drawing on your knowledge of the psychology of physical activity and exercise, what community activities would you design to encourage wide and maintained participation amongst residents in the community, and why?
2. If you worked at Sport Wales as a sport psychologist and were tasked with helping their international athletes secure Olympic medals, what psychological concepts would you target and why?

### **PHYSIOLOGY**

1. Discuss how fluid and food intake might affect the training and event performance of an Olympic marathon runner.
2. Explicitly drawing on your knowledge of physiology and how the body works, what comprehensive advice would you give to an athlete that wants to improve their explosive power?

### **BIOMECHANICS**

1. Describe Newton's three laws of motion that explain the forces related to the movement of an object. Provide a comprehensive example in a sport situation to illustrate the principles of Newton's laws of motion. Finally, explain how air resistance plays a role in steep slope snowboarding, using the laws of motion.
2. A high standard football player is struggling to be the best they can be in their sport. They wish to improve their physical attributes to help them get to the elite level. They have come to see a sports

biomechanist (you) for assistance. Highlight areas which you would target for improvement, and detail the biomechanical principles you would apply in order to assist the athlete in each of these areas.