

SPORT AND EXERCISE SCIENCE

Time Allowed – 1.5 hours

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

PSYCHOLOGY

1. As a sport psychologist who works with a variety of athletes, how and why would you adapt the way you work to fit with clients from different age groups (i.e., <11, 14-18, >21), competitive standards (recreational through to elite), and sports (individual vs team-based)?
2. Explicitly drawing on your knowledge of how the mind or brain works, &/or the psychology involved with being physically active or exercising (versus not), how would you encourage a group of recent retirees to join your Zumba class and how would you run the class itself?

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?

Continued Overleaf

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 downhill skiing, using the laws of motion.
2. A high standard rugby player is struggling to be the best they can be in their sport. They wish to improve their technique and 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.