

SPORT AND EXERCISE SCIENCE

Time Allowed – 1.5 hours

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

PSYCHOLOGY

1. Choose **three** concepts in sport psychology that evidence suggests are associated with an athlete's performance on "game day"; describe the theoretical relationship between each psychological concept and performance, and provide a corresponding technique or strategy for each to help ensure that the athlete performs to their best.
2. Explicitly drawing on your knowledge of the psychology of physical activity, (a) what motives might a university student have for increasing their physical activity, (b) what barriers to reaching the weekly recommendations for physical activity might a university student experience, and (b) including a demonstration of your knowledge of relevant psychological theories, how would you help them to tap into their motives, overcome their barriers, and reach their physical activity targets?

PHYSIOLOGY

1. Athletes come in all shapes and sizes but we often see typical body shapes for particular sports, for example, sprinters and long distance runners. How does a person's body composition (fat, muscle and bone) effect their performance and suitability for two contrasting sports of your choice? Please specify your sports.
2. Describe the passage of blood around the body during the process of oxygen delivery to, and carbon dioxide removal from, the working muscle; include in your answer reference to the chambers of the heart, the main blood vessels, and detail on where the exchange of oxygen and carbon dioxide occurs.

See over ...

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.