Summer Examinations 2016

Module Title: Biomechanical Basis of Sport & Exercise
Level: Five
Time Allowed: Two hours

Instructions to students:

- Enter your student number **not** your name on all answer books.
- Answer **two** of the **four** questions.
- All questions are equally weighted.
- Begin each question in a separate answer book; label each answer book clearly with the number of the question you are answering.
- The same material should not constitute a substantial part of more than one question.
- Neither books nor notes may be taken into the examination.
- Students are **not** permitted to remove this examination paper from the examination room. For all purposes the examination paper remains the property of the University of Northampton.

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Answer two of the following questions:

1. Explain the neurophysiology controlling the principle of ‘orderly recruitment’ of motor units and demonstrate the correct procedures used during EMG analysis.

2. Explain, using Newton’s laws of linear and angular motion, a ball’s projectile motion and demonstrate how technique and equipment can be manipulated to alter its motion to improve performance.

3. Explain the force-length and force-velocity characteristics of skeletal muscle and discuss why it may be beneficial to performance and injury prevention that the plantarflexors operate only on their ascending limb of the force-length curve.

4. Explain the mechanics of the stretch shortening cycle (SSC) and discuss the influence of tendon stiffness on force production and injury risk during SSC exercise.

End of Paper