Examination Period 3: 2016/17

SPO200317N

Module Title Physiological Basis of Sport and Exercise
Level Five
Time Allowed Two hours

Instructions to students:

- Enter your student number **not** your name on all answer books.
- Answer **two** out of **five** 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.

<table>
<thead>
<tr>
<th>No. of Pages</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Questions</td>
<td>5</td>
</tr>
</tbody>
</table>
Answer two out of five questions

1. The end product of glycolysis is the synthesis of two pyruvate molecules. During aerobic metabolism the pyruvate is then transported to the Kreb’s Cycle. Describe in detail how pyruvate is transported into Kreb’s Cycle. Then give a detailed explanation of how and why pyruvate may be converted to lactic acid during the anaerobic metabolism of glucose.

2. The large increase in carbon dioxide produced, via energy metabolism, during exercise greatly increases the partial pressure of this gas within the exercising muscle fibres. Give a detailed explanation of how gas partial pressures affect diffusion gradients and oxygen’s saturation of haemoglobin. Then describe in detail how carbon dioxide is transported within the blood system.

3. Over a period of time the body undergoes specific central and peripheral adaptations relating to the type, duration and intensity of a training programme. Explain in detail the chronic central adaptations that take place due to aerobic endurance training and discuss how they may facilitate an improvement in performance.

4. Over a period of time the body undergoes specific central and peripheral adaptations relating to the type, duration and intensity of a training programme. Explain in detail the chronic central adaptations that take place due to aerobic endurance training and discuss how they may facilitate an improvement in performance.

5. The human immune system is a highly complex array of cells which regulates susceptibility to, severity of, and recovery from infection (Nash, 1994). Briefly describe the immune system and its function. Then give a detailed description of the system’s B cell response to an individual pathogen, and discuss the immune system’s response to a single bout of exercise.

End of Paper