Examination Period 3: 2017/18

SPM202818N

Module Title              Applied Physiology for Sport
Level                    Five
Time Allowed             Two hours

Instructions to students:
• Enter your student number not your name on all answer books.
• Answer three out of five questions.
• All questions are equally weighted.
• Begin each answer on a new page; label each page clearly with the number of the question you are answering.
• Neither books nor notes may be taken into the examination.

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1. The partial pressure of oxygen and carbon dioxide in the circulatory system determines the concentration of these gasses within the blood system. Describe in detail how gas partial pressures affect diffusion gradients and oxygen’s saturation of haemoglobin. Then give a detailed explanation of the phenomenon known as the ‘Bohr Shift’.

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

3. Explain the three systems used to resynthesise ATP and discuss the interaction of these systems:
   a. 100m sprint
   b. 400m race
   c. marathon

4. Identify the two main types of muscle fibres, list their associated characteristics and determine which fibre type will be predominately utilised in the following sports;
   - Shot Putt
   - Marathon running
   - 800m running

5. Muscular fatigue is associated with an inability to maintain a specific muscle action. Describe in detail how the disassociation of lactic acid into hydrogen ions and lactate can cause the onset of fatigue.

End of Paper