Tuesday 24 May 2016  

**Materials**
You will need no other materials.

**Instructions**
- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

**Information**
- The marks for part questions are shown in brackets.
- The maximum mark for this paper is 84.
- In Section B, you should answer in continuous prose.
- In Section B, you will be marked on your ability to
  - use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.
Section A

Answer **all** questions in the spaces provided.

There are 12 marks for each question.

**Applied Exercise Physiology**

1 (a) (i) Body Mass Index (BMI) can be used as a measure of nutritional suitability.

Which **one** of the following statements is correct? [1 mark]

(Tick the correct box.)

- A BMI measures body composition
- B BMI measures body fat
- C BMI measures bone density
- D BMI measures muscle mass

1 (a) (ii) A high percentage of body fat can have a negative impact on health and fitness.

Define the terms health **and** fitness. [2 marks]

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1 (a) (iii) Other than diet, explain how two different lifestyle choices can have a negative impact on health.  

[2 marks]

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1 (b) Gaseous exchange occurs between the capillaries and tissues and the capillaries and alveoli.

Outline how the following characteristics of capillaries allow for efficient gaseous exchange:

- one cell thick
- large surface area
- narrow diameter.  

[3 marks]

One cell thick: ____________________________________________________________
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Large surface area: ________________________________________________________
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Narrow diameter: __________________________________________________________
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Question 1 continues on next page
1 (c) Table 1 shows the partial pressure of oxygen (PO\(_2\)) and carbon dioxide (PCO\(_2\)) in a blood capillary and a muscle.

<table>
<thead>
<tr>
<th></th>
<th>PO(_2) (mmHg)</th>
<th>PCO(_2) (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood capillary</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>Muscle</td>
<td>40</td>
<td>46</td>
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</tbody>
</table>

Using Table 1, describe how oxygen and carbon dioxide move between the blood and the muscles. [4 marks]

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2. **Figure 1** shows a performer completing a press up.

**Figure 1**

Position A  

Position B

2 (a) Using **Figure 1**, complete **Table 2** to identify the joint action, the main agonist and type of isotonic contraction at the *elbow* from position A to position B.  

**Table 2**

<table>
<thead>
<tr>
<th>Elbow movement from position A to position B</th>
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<tbody>
<tr>
<td>Joint action</td>
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<td>---------------</td>
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</table>
2 (b) Lever systems allow movement at joints. Sketch and label a third class lever system. [2 marks]

Question 2 continues on next page
2 (c) When a performer exercises for a continuous period, blood is redistributed around the body as shown in Figure 2.

![Figure 2](image_url)

2 (c) (i) Identify and explain the change in blood flow during exercise at two different locations shown in Figure 2.

[4 marks]
2 (c) (ii) Explain how redistribution of blood is achieved during exercise.  

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[3 marks]

Skill Acquisition

3 Skills are classified using different continua.

3 (a) (i) A tennis player starts the rally with a serve.

Which one of the following options accurately classifies the tennis serve?  

(Tick the correct box.)  

A self-paced – discrete – gross  
B externally paced – continuous – fine  
C externally paced – discrete – gross  
D self-paced – serial – fine

3 (a) (ii) Justify your classification on the gross – fine continuum.  

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[1 mark]
The memory process is important to a tennis player. Describe the functions of a tennis player’s short term sensory store (STSS) during a rally.

3 (b) (i) [3 marks]

Define simple reaction time and choice reaction time, and explain which is more common in the game of tennis.

3 (b) (ii) [4 marks]
3 (c) Motivation is important for tennis players.
Name and describe different forms of motivation. [3 marks]

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4 There are three stages of learning.
4 (a) Identify the first stage of learning and justify the use of demonstrations at this stage. [2 marks]
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4 (b) (i) When a performer moves from the first stage of learning to the final stage of learning, they may experience a learning plateau.
Identify the possible causes of a learning plateau. [3 marks]
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Turn over
4 (b) (ii) Suggest strategies a coach may use to help a performer to overcome a learning plateau. [4 marks]

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4 (c) Schmidt’s (1975) schema theory states that learning occurs through the development of schema.

Recall schema is responsible for initiating movement.

Identify and explain the elements of recall schema. [3 marks]

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Opportunities for Participation

5  Sport England aims to increase the number of people who regularly participate in sport and physical activity.

5 (a)  Identify the characteristics of sport.  

[3 marks]

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5 (b)  Sportivate is a London 2012 legacy project. Its aim is to increase participation in sport.

Describe the features of a Sportivate project.  

[2 marks]

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5 (c)  Sport England research shows that women are less likely to take part in sport than men.

Explain how the following act as barriers resulting in lower participation rates amongst women:

- stereotyping
- discrimination.

[2 marks]

Stereotyping ____________________________________________________________
________________________________________________________________________

Discrimination __________________________________________________________
________________________________________________________________________
5 (d) Suggest how schools can improve participation rates of girls. [5 marks]

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6 Participation in sport and physical activity can depend upon the opportunities available to individuals within society.

6 (a) Define the term equal opportunity. [2 marks]

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6 (b) (i) Opportunities to participate in sport and physical activity are provided by the voluntary sector, public sector or private sector.

Identify the characteristics and goals of the voluntary sector. [3 marks]

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6 (b) (ii) Suggest how the public sector supports participation in sport and physical activity for those from a lower socio-economic class. [2 marks]

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Question 6 continues on the next page
6 (c) The publication Moving and Growing (1952) encouraged a movement approach in school physical education programmes.

Describe the content and delivery of the movement approach in school physical education programmes. [5 marks]

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Section B

Answer this question.

There are 12 marks for this question.

In order to maximise your marks, you are advised to give equal weighting to all areas of the question.

7 You have been asked to plan and deliver a six week training programme for a group of performers, and provide extrinsic feedback.

Explain how the FITT principles can be applied to the training programme and outline the advantages and disadvantages of using extrinsic feedback.

[12 marks]

You may use this space to plan your answer.
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