INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.
Write your name, centre number and candidate number in the spaces at the top of this page.
Write your answers in the spaces provided in this booklet. If you run out of space, use the continuation pages at the back of the booklet, taking care to number the question(s) correctly.
Diagrams, charts and graphs can be used to support answers when they are appropriate.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.
You are reminded of the necessity for good English and orderly presentation in your answers.
1. The following is a still photograph of a weightlifter at the end of a successful lift.

(a) (i) Name **two** components of fitness needed by the weightlifter shown in the image. [2]

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   • ..............................................................................................................

(ii) Justify your reasons for choosing the **two** fitness components in 1(a)(i) above. [2]

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   ..............................................................................................................
(iii) Explain why an understanding of the principle of specificity is important for weightlifters when training and competing. [3]

(b) (i) Identify the type of muscle contraction taking place when the weightlifter holds the bar still above his head at the end of the lift.

Tick (✓) one box only. [1]

ISOMETRIC

ECCENTRIC

CONCENTRIC

ISOKINETIC

(ii) Identify the type of muscle fibres that have been used to lift the weight. [1]

Tick (✓) one box only.

VOLUNTARY TWITCH

FAST TWITCH

SLOW TWITCH

CARDIAC TWITCH
(c) (i) Explain why the weightlifter shown in the image would need to cool down at the end of the competition.  

(ii) The *One Repetition Maximum Test* could be an appropriate test for a weightlifter. Give two reasons to justify why this could be a suitable test for the weightlifter to use.  

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•
(d) Complete the table by naming the types of movement described by the definitions in the left hand column.

<table>
<thead>
<tr>
<th>DEFINITION</th>
<th>TYPE OF MOVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>This movement brings part(s) of the body towards the centre.</td>
<td></td>
</tr>
<tr>
<td>The angles do not change but the joint moves in a circular direction.</td>
<td></td>
</tr>
</tbody>
</table>

2. (a) Evaluate why measuring your heart rate before, during and after physical activity is important.
(b) (i) Identify **two** short-term effects that might take place as a result of taking part in a period of intense physical activity. [2]

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- ..............................................................................................................................................................................

(ii) Long-term training can result in physiological adaptations.

Identify **two** of these adaptations and analyse how these could improve sporting performance. [5]
(c) (i) Complete the table below by inserting the name of the fitness component described by the definition.

<table>
<thead>
<tr>
<th>DEFINITION</th>
<th>COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed × Strength</td>
<td></td>
</tr>
<tr>
<td>The ability of the muscle to work for a long period without tiring</td>
<td></td>
</tr>
</tbody>
</table>

(ii) Analyse how improvements to the two components identified in 2(c)(i) could improve performance in a named sporting activity.

*Named sporting activity:* .....................................................................................................................................................
3. (a) Explain how taking part in regular physical activity can help a person's mental and social well-being. [4]

(b) Explain how the use of modern technology devices, such as activity trackers and mobile phone apps, could motivate an individual to take part in regular physical activity. [4]
(c) • The 2016 State of the UK Fitness Industry report indicated that for the first time, gym member numbers had exceeded 9 million
• 1 in every 7 people in the UK were members of a gym
• 224 new public and private fitness facilities had been opened in the last 12 months

Give two reasons for the increase in gym membership.

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• ............................................................................................................................

• ............................................................................................................................
Read the following testing data recorded by a 16-year-old male during a 12-week training programme to improve muscular endurance.

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Exercise</th>
<th>REPS WK1</th>
<th>REPS WK6</th>
<th>REPS WK12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Body</td>
<td>Skipping</td>
<td>36</td>
<td>42</td>
<td>47</td>
</tr>
<tr>
<td>Upper Body</td>
<td>Press Ups</td>
<td>19</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>Upper Body</td>
<td>Bicep Curls</td>
<td>24</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>Lower Body</td>
<td>Forward Lunge</td>
<td>13</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>Lower Body</td>
<td>Squats</td>
<td>18</td>
<td>22</td>
<td>30</td>
</tr>
</tbody>
</table>

Using your knowledge of principles of training and methods of training, evaluate why the improvements in performance took place over the course of the programme. [6]