

Examiners' Report  
June 2014

GCSE Physical Education 5PE01 01

## Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at [www.edexcel.com](http://www.edexcel.com) or [www.btec.co.uk](http://www.btec.co.uk).

Alternatively, you can get in touch with us using the details on our contact us page at [www.edexcel.com/contactus](http://www.edexcel.com/contactus).



### Giving you insight to inform next steps

ResultsPlus is Pearson's free online service giving instant and detailed analysis of your students' exam results.

- See students' scores for every exam question.
- Understand how your students' performance compares with class and national averages.
- Identify potential topics, skills and types of question where students may need to develop their learning further.

For more information on ResultsPlus, or to log in, visit [www.edexcel.com/resultsplus](http://www.edexcel.com/resultsplus). Your exams officer will be able to set up your ResultsPlus account in minutes via Edexcel Online.

### Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: [www.pearson.com/uk](http://www.pearson.com/uk).

June 2014

Publications Code UG039686

All the material in this publication is copyright  
© Pearson Education Ltd 2014

## **Introduction**

To be successful on 5PE01, candidates need to recall and apply their knowledge and express their ideas clearly. They will need to demonstrate understanding and higher order skills. There is a need for students to be able to develop their ideas, following a point through in greater depth rather than providing a more generalised approach to their responses.

Questions are structured to elicit different levels of responses from candidates: this is indicated through the number of marks available and the command words used in the question. For example, some recall questions will ask students to name, state, identify, whilst other questions will ask for descriptions and explanations or discussions. This format of questioning allows for greater differentiation between candidates and examiners are better able to assess the depth of their knowledge and understanding.

## Question 2 (a) (i)

Question 2 (a) The majority of students correctly classified the stated benefits as mental and physical, those that did not tended to give a description of how the benefits could be achieved rather than their classification. Throughout the paper the importance to students of reading the question carefully will be emphasised.

## Question 2 (a) (ii)

### Question 2 (b)

This question asked students to explain how participation in physical activity can stimulate cooperation. A range of responses was provided by candidates.

Incorrect responses tended to focus on communication rather than cooperation, with examples of talking to others, or of the social benefits of physical activity, eg meeting new people and making friends. Of the correct responses, playing in a team and using team work/working with others was often cited.

The full range of marks was achieved although the 'third' mark did differentiate, being awarded for a more detailed/developed response. Many students did talk about 'cooperating'. However, relatively few went on to develop their explanation with regards to listening to ideas. Most correct responses tended to focus on set plays/tactics but could have been more general, for example, listening to the coach and implementing suggested changes.

(b) Explain how participation in physical activity can stimulate cooperation.

(3)

Taking part in physical activity with others allows you to work together to achieve a common goal. For example, playing for a football team and trying to win the last game of the season will stimulate cooperation because all the players will be motivated to win their final game. Changing tactics in a game may stimulate cooperation as the team have to work together to try and construct a new game plan effectively.

(Total for Question 2 = 5 marks)



**ResultsPlus**

Examiner Comments

This candidate provides a linked explanation to address the demands of this question. They identify that physical activity involves being with other people and that this allows you to work together.

They complete the response by giving an example to aid their explanation by stating that the team will have to work together to change their tactics during a game to construct a new game plan. This response gained all three available marks.

**3 marks**



**ResultsPlus**

Examiner Tip

Look carefully at the wording of each question and the marks available to guide you when deciding the depth of your response.

This question had three marks available and asked for an explanation, therefore you should be able to state a fact and give a reason to support that fact and ideally an example of the application of this that relates to the question.

(b) Explain how participation in physical activity can stimulate cooperation.

(3)

She can stimulate cooperation by taking part in physical exercise which involves others such as doubles tennis or volleyball. By this she will have to communicate with their team player, meaning they both have to work together or create cooperation.



## ResultsPlus

### Examiner Comments

Compare this response with the previous response. This candidate has also identified that cooperation is stimulated by taking part with others and gives an example of the type of activity where this would be the case, doubles tennis or volleyball.

They also explain that because people are in a team they have to work together which creates opportunity to develop cooperation. This response gained two marks, the additional depth for the third mark could have been supplied through an example of team work linked to either tennis or volleyball, for example, discussing and agreeing court position when receiving service.

**2 marks**

(b) Explain how participation in physical activity can stimulate cooperation.

(3)

If you participate in a team sport, for example basketball, you have to work together towards a common goal or aim. In basketball you must work together to create and run plays with the common goal of winning the local league.



## ResultsPlus

### Examiner Comments

In this final example the response has again achieved the maximum three marks. The student makes reference to playing in a team sport, meaning you have to work together towards a common goal and they give an applied example of this to basketball, stating that the team need to work together to create and run plays. This is a good response as it addresses, through use of an applied example, the requirements of the question.

### Question 3 (a)

The majority of candidates were unable to name a national governing body. Incorrect responses included names of sports performers (eg David Beckham), names of government ministers (eg David Cameron), names of political parties, (eg The Green Party), names of specific initiatives (eg Sainsbury's Active Kids), names of sports brands (eg Nike) or the names of the other agencies, (eg Sport England).

Of the correct responses the Football Association was a popular correct response, but a variety of sports featured, eg England Hockey, England Netball, Rounders England, the ASA, World Karate Federation, and Football Association Ireland.

RFU

(1)



**ResultsPlus**

**Examiner Comments**

The name of the National Governing Body could be written in full, or, as in this example the appropriate initials would also be credited.

FA (football association)

(1)



**ResultsPlus**

**Examiner Comments**

The FA or Football Association was a popular correct response.



**ResultsPlus**

**Examiner Tip**

Although abbreviations of the name of the National Governing Body were accepted it is always a good idea to write any names or terms in full to make sure your answer is clear.

### Question 3 (b)

This question asked candidates to consider the common purposes of sport-related initiatives.

A description of two common purposes was required: this made the question more challenging because candidates needed a good breadth of knowledge to gain maximum marks. Candidates could have described any of the three common purposes stated in the specification (increase participation, retain people in sport, increase sporting success). In addition to this, the underlying aim of increasing the health of the nation was also credited.

Many candidates correctly identified some of these purposes, but often identified rather than described. Occasionally candidates would identify all four of the common purposes listed above: these candidates gained two of the available marks. To achieve four marks, each 'identification' needed to be elaborated to be considered a description. For example, a response that stated 'to retain people in sport' would be credited with one mark for identifying a common purpose. To gain the second mark the candidate would need to describe this in more detail, eg 'to retain people in sport through improved club links'. There was a variety of ways that candidates could access the second mark for each common

Sport England and Youth Sport Trust are agencies that use initiatives to impact on sport and physical activity in the United Kingdom.

(b) Describe **two** common purposes of a sport-related initiative.

(4)

Common purpose 1

Retain people - Providing clubs and opportunities to get people involved means they will improve or maintain physical fitness and health. They are also more likely to succeed and go to other roles. An effective network of clubs and coaching will allow people to remain involved.

Common purpose 2

Increase participation - By promoting the need for a healthy, active lifestyle, people can improve or maintain physical fitness or health. With an effective network of clubs, it can lead to a healthier nation and better entertainment.



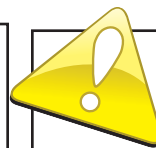
**ResultsPlus**  
Examiner Comments

This response gained maximum marks. Whilst there is some repetition across the two parts of the answer there is an appropriate level of detail.

In the first part of the response credit is given for describing a common purpose: retaining people in sport through an effective network of clubs and coaching.

In the second part of the response credit is given for the description that initiatives are designed to increase participation to improve physical health leading to a healthier nation.

**4 marks**



**ResultsPlus**  
Examiner Tip

If you are asked to provide two examples in a response make sure the examples you give are varied.

Common purpose 1

To get more people enjoying physical activity, and whilst doing this keeping them physically fit.



**ResultsPlus**

**Examiner Comments**

In this example the student gains 2 marks for 'get more people enjoying physical activity' (increasing participation) and 'whilst doing this keeping them physically fit'.

**2 marks**

Common purpose 1

Get people involved in physical activity, to reduce obesity and get a healthier and fitter nation. Helps to educate on a healthy active lifestyle and adapt it to their lives.

Common purpose 2

Get people to stay and to keep them involved in sport. They do this through different sporting roles and better facilities.



**ResultsPlus**

**Examiner Comments**

In this example the candidate again scores maximum marks.

They identify a common purpose to 'get more people involved' and develop this by linking to health, 'to reduce obesity and get a healthier nation'.

The second part of the response focuses on the common purpose: to retain people in sport through different sporting roles.

**4 marks**



## Question 4 (a)

This question was answered well, with the majority of candidates gaining both available marks.

The required responses were cardiovascular fitness (or equivalent) and muscular endurance. Incorrect responses included cardiovascular system, muscular strength or aspects of skill-related fitness such as speed and agility.

4 Usman and Tony enjoy participating in athletics.

(a) Which **two** components of health-related exercise is Tony most likely to improve through regular training sessions using Fartlek training?

(2)

1 Speed muscle endurance

2 Cardiovascular



**ResultsPlus**  
Examiner Comments

In this example the candidate achieves 1 mark for muscular endurance but cannot be credited for cardiovascular because the full term is not given: we do not know if the candidate is referring to cardiovascular fitness, or the cardiovascular system.

**1 mark**



**ResultsPlus**  
Examiner Tip

Make sure that you use the correct terms from the specification for technical terms. The correct language must be used to show your knowledge.

4 Usman and Tony enjoy participating in athletics.

(a) Which **two** components of health-related exercise is Tony most likely to improve through regular training sessions using Fartlek training?

(2)

1 Muscular Endurance

2 Cardiovascular fitness



**ResultsPlus**  
Examiner Comments

In this example the candidate identifies correctly the two components of fitness most likely to be improved through regular Fartlek training sessions.

**2 marks**

## Question 4 (b) (i)

## Question 4 (b) (ii)

### Question 4 (b)

In the first part of this question candidates had to supply the missing component of health-related exercise based on the information given in the question. The majority of candidates interpreted this information correctly, identifying 'flexibility' as the missing word. The second part of the question required candidates to name a fitness test that would test this component of health-related exercise, therefore the candidate had to link a fitness test to whatever they had given as their answer in the first part of the question.

The response to the second part of the question was marked in relation to the candidate answer to the first part of the question, ie if an alternative component of health-related exercise were identified in (b) (i) and the correct fitness test for this component were given in (b) (ii) credit was given. However, as stated above most candidates identified 'flexibility' correctly and went on to identify the test correctly as the 'sit and reach'.

Occasionally, some candidates stated the incorrect name of the test, eg 'stand and stretch', or 'stretch toes' test. Some candidates were unable to access any marks even though they had chosen the correct test for their answer in (b) (ii) because they had stated a skill-related component of fitness in (b) (i) rather than a health-related component of exercise. Because this requirement was repeated in both parts of the question no credit could be given.

(b) Complete the statement below about Usman's training.

(1)

(i) Usman has a short stride length. To improve his range of movement he works on his flexibility, a component of health-related exercise.

(ii) Name a fitness test that Usman could use to monitor improvement in this component of health-related exercise.

(1)

Sit and reach test



### ResultsPlus Examiner Comments

This response gains both available marks. In (b) (i) the candidate has identified 'flexibility' correctly and in (b) (ii) that this can be tested using the 'sit and reach' test.

**2 marks**



### ResultsPlus Examiner Tip

Look out for key words or phrases in a question, in this example 'improve his range of movement' and 'component of health-related exercise' are key pieces of information required to make sure you give the correct answer.

(b) Complete the statement below about Usman's training.

(1)

(i) Usman has a short stride length. To improve his range of movement he works on his Cardio-vascular fitness a component of health-related exercise.

(ii) Name a fitness test that Usman could use to monitor improvement in this component of health-related exercise.

(1)

12 minute Cooper run



**ResultsPlus**

**Examiner Comments**

In this example, despite selecting the wrong component of health-related exercise in (b) (i) the candidate still gains access to (b) (ii) because the test they have stated is a test used to measure cardiovascular fitness.

**1 mark**

## Question 4 (c)

This question asked candidates to explain how one of the principles of SMART could be used to help motivation to train. Three marks were available. In order fully to explain, candidates needed to identify one of the principles, state a fact about this principle and then link this to motivation, ie give a reason why this was motivating to continue to train.

The full range of marks was accessed by candidates, SMART was well known, with the majority of candidates achieving at least one mark for correct identification of one of the principles of SMART. All aspects of SMART were offered although 'Time-bound' and 'Measurable' were most popular and often those that opted for these principles gave full explanations regarding how these may increase motivation. For example, for Time-bound, by having a deadline that motivated a person to complete rather than postpone training, or for Measurable, by seeing progress a person would be motivated to continue because they would be getting nearer to their goal.

Incorrect responses included components of skill-related fitness (agility, power) and cardiovascular fitness or the principles of training, in particular there was confusion over specificity and specific. Where Achievable was used as the principle often the explanation was impeded because candidates tended to repeat (rather than explain) that an achievable target was achievable therefore motivating. Some candidates listed more than one aspect of SMART; where this occurred examiners looked for the aspect that was explained best and marked in relation to that principle. If a candidate failed to identify a named principle of SMART correctly but it was clear from their response to which aspect they were referring, they could still gain some credit.

Having a time-bound. Having a certain amount of time <sup>to complete</sup> <sub>of</sub>  
would motivate the two of them to train, because as the  
time of their target comes nearer, they would ~~improve~~  
~~work~~ work harder in order to improve more.



### ResultsPlus Examiner Comments

This response focused on the principle of targets being Time-bound and achieved all three marks. The candidate states the principle, tells us a fact about it (that there is a certain amount of time to complete) and provides a reason why this motivates (because as their target comes nearer the person would work harder to improve more).

**3 marks**



### ResultsPlus Examiner Tip

Note how this student has underlined the words they consider to be key to answering this question: this makes sure that they do not forget a part of the question.

(c) Targets are often used to improve motivation.

Explain how **one** of the principles of SMART target setting could help Usman and Tony maintain their motivation to train.

(3)

The Measurable could help Usman and Tony because they could constantly check how much they have improved. Every ~~month~~ month they can check on how much they have improved.



**ResultsPlus**

**Examiner Comments**

This response gains 2 marks. The first is given for identifying 'measurable' correctly as a principle of SMART and the second mark for explaining that this means someone can check out progress.

To gain the third available mark the candidate needs to explain how this increased motivation, eg seeing improvement will make a person want to continue to train so that they can get even better/closer to their final target.

**2 marks**



**ResultsPlus**

**Examiner Tip**

Do not forget to link your answers to the question. The question asked how this would improve motivation so this must be included in your answer to get full marks.

(c) Targets are often used to improve motivation.

Explain how **one** of the principles of SMART target setting could help Usman and Tony maintain their motivation to train.

(3)

Usman could use the principle of 'time bound' to ensure he completes ~~his~~ his goal before a certain time. Instead of saying 'he can achieve his goal when he likes, he should set a date or time bound such as one month. This is more challenging and will prevent him putting it off forever.

(Total for Question 4 = 7 marks)



**ResultsPlus**

**Examiner Comments**

In this explanation the candidate gains credit for identifying that goals should be time-bound, that being time-bound will ensure the goal is completed within a certain time and that this will provide a challenge preventing the goal from being delayed (thus motivating them to continue). This response gained the three available marks.

**3 marks**

## Question 5 (a) (i)

Question 5 showed two different images of people participating in sport and candidates were asked to explain how the people in the images applied two aspects of skill-related fitness within their respective sports.

Question 5 (a) (i) was answered correctly by the large majority of students. Candidates could respond to this question by referencing the quick change of direction being made by the ball handler, or provide a description of this type of movement, eg sidestepping, dodging their opponent, or avoiding the tackle. Providing it was clear that there was a change of direction at speed or that the player needed to avoid the opposition, credit was given.

(a) (i) Using **Figure 1**, state how the rugby player with the ball is using agility in his sport.

(1)

by changing direction  
quicker to get past his  
opponent



**ResultsPlus**

**Examiner Comments**

The candidate identifies correctly that agility allows the player to change direction quickly to get past his opponent.

Although almost a definition, the candidate has applied their answer by adding that this allows them to get past their opponent. Given the image in the question this alone would have been sufficient to gain credit.

**1 mark**

(a) (i) Using **Figure 1**, state how the rugby player with the ball is using agility in his sport.

(1)

The rugby player uses agility to dodge and  
move around the defending player quickly



**ResultsPlus**

**Examiner Comments**

In this example the candidate gains credit for stating that the player dodges quickly around the defender.

**1 mark**

## Question 5 (a) (ii)

Question 5 (a) (ii)

Although this part of the question tested the same type of knowledge candidates found this question more challenging than 5 (a) (i). The definition of balance appeared less well known than that of agility. It is also possible that candidates are less familiar with applying this component of fitness to games play.

This question focused on the player without the ball. Despite this, some candidates talked about the player taking the shot. A simple description of the body position of the player without the ball was insufficient for credit - this did not state how they were using balance. In order to gain credit there needed to be a statement about the player maintaining their position, not falling forward or similar.

(ii) Using **Figure 2**, state how the netball player without the ball is using balance in her sport.

(1)

she is on her toes trying to be as big as possible and try to block the girl from shooting.



**ResultsPlus**

**Examiner Comments**

In this example the candidate describes the image but does not tell us how balance is being used, therefore does not gain the mark for this question.

**0 marks**

(ii) Using **Figure 2**, state how the netball player without the ball is using balance in her sport.

(1)

She is on her toes trying to block the ball, if she did not have balance, she would fall over.



**ResultsPlus**

**Examiner Comments**

Compare this response to the previous. There is a very similar description, however this candidate adds that 'without balance she would fall over'. Given the context of the first part of the response this states how balance is being used and therefore gains the available mark.

**1 mark**



## Question 5 (b)

The complete range of marks was achieved for this question. Candidates were required to carry out several tasks before arriving at a suitable response. In first of all they needed to identify the components of skill-related fitness, discounting agility and balance (because they had been used in the previous part of the question), they then had to think of a relevant game activity where this component would be important and finally they had to explain why it was important within that game. Some candidates gave excellent responses gaining full marks.

Some candidates failed to gain credit because they selected components of health-related exercise (rather than skill-related fitness) to base their explanations on, eg strength, whilst others repeated the use of agility or balance. Despite the requirement in the question to apply the responses to games, some candidates used athletics (100 m sprint) or swimming, especially when speed and reaction time were the selected components of fitness.

Occasionally, candidates would define the components of fitness rather than apply their knowledge as required by the question and therefore failed to gain credit. A variety of games was used and popular correct choices of components were speed and power, although all remaining components of skill-related fitness were used successfully to address this question.

The question required an explanation, therefore developed responses were sought to gain the available two marks for each explanation.

Successful students often used the format 'x' is important in 'sport y' because ..... so that .....

(b) Explain the importance of **two** components of skill-related fitness other than agility and balance for any games player.

Name of component of skill-related fitness 1

~~Agility~~ ~~Balance~~ Speed

Explanation

(2)

Speed is important to a rugby player with the ball, running as fast as possible to score a try without being tackled as they will be able to run faster to get away from opponents.

Name of component of skill-related fitness 2

Reaction time

Explanation

(2)

In ~~tennis~~ football, a good reaction time is needed by the ~~goalkeeper~~ player in goal so he can react quickly to seeing ~~as~~ that the ball is coming his way, so he can ~~catch~~ kick it away.



This response gains three marks. The explanation of the importance of speed within rugby is credited with 2 marks: 'speed' is important in 'rugby' because they need to 'run as fast as possible to score a try' so that 'they are not tackled and can get away from their opponent'.

The explanation of the importance of reaction time gains 1 mark: 'reaction time' is important in 'football' because the player needs 'to quickly see that the ball is coming so he can kick it' (see the ball is coming so an action can be carried out was considered equivalent to making quick decisions). Further extension to this statement was required, eg so that he could clear the ball before the attacker could take another shot.

**3 marks**

- (b) Explain the importance of **two** components of skill-related fitness other than agility and balance for any games player.

Name of component of skill-related fitness 1

Speed

Explanation

(2)

A winger in football needs speed to knock the ball past a defender and chase after it to either shoot or deliver a cross.

Name of component of skill-related fitness 2

Power

Explanation

(2)

A rugby player in the scrum needs power to force the opposition ruck backwards and gain or maintain possession of the ball.



In this example the candidate achieves all four marks.

We are told that:

Speed is important in football because a winger needs speed to knock the ball past a defender and chase after it so that they can then shoot or deliver a cross.

Power is important in rugby because in the scrum it is needed to force the opposition ruck backwards so that they may gain possession of the ball.

**4 marks**

(b) Explain the importance of **two** components of skill-related fitness other than agility and balance for any games player.

Name of component of skill-related fitness 1

Speed

Explanation

Speed is used in football by a striker ~~to~~ so that they are able to get to the ball before an opponent and have a shot on goal. This will help ~~them~~ them to win the game. (2)

Name of component of skill-related fitness 2

Coordination

Explanation

A footballer requires coordination of the eye and the foot so that they make good contact with the ball. This will make their passes and shots more accurate. (2)



In this example the candidate also achieves four marks, on this occasion using speed and co-ordination.

Credit is given for the statements:

Speed is important in football because a striker needs to get to the ball before the opponent so that they can have a shot on goal.

Co-ordination is important in football because good eye foot co-ordination will allow good contact with the ball so that the shot is more accurate.

**4 marks**

## Question 6 (a)

## Question 6 (b)

Q6 (a) was very well answered with the majority of candidates recognising that carbohydrate was the missing nutrient from the table. Q6 (b) was also well answered by the majority of candidates but fewer candidates gained credit for this part of the question than in Q6 (a).

Incorrect responses in (a) included named vitamins or minerals, eg vitamin C or iron or occasionally the question was omitted. As the question in (b) asked for the importance of the missing nutrient (rather than the importance of the candidate response in (a)) reference to energy was the only acceptable answer.

Energy was a popular response, with almost three-quarters of the candidature achieving the mark for the question. Some candidates referred to slow release energy, which was not credited because this would be a characteristic of fats rather than carbohydrates.

(a) Identify the nutrient missing from the table.

(1)

Carbohydrates

(b) State the importance of the missing nutrient in maintaining an active lifestyle.

(1)

It provides energy for the body



**ResultsPlus**  
Examiner Comments

This response identifies carbohydrates correctly in (a) and energy in (b) and therefore gains both available marks.

**2 marks**

(a) Identify the nutrient missing from the table.

(1)

Carbohydrates

(b) State the importance of the missing nutrient in maintaining an active lifestyle.

(1)

You need carbohydrates so you could build up your muscle and become bigger.



**ResultsPlus**  
Examiner Comments

Whilst many candidates identified correctly the importance of carbohydrates in the diet, not all were able to. This candidate gains credit in (a) but has not identified the importance of carbohydrates for credit in (b).

**1 mark**

## Question 6 (c)

Candidates were required to identify how, other than through diet, bone strength could be increased. The expected responses to this question focused on the use of physical activity to increase bone density, in particular weight-bearing exercise. A general statement about exercise was considered too general knowledge for a GCSE PE examination, where weight-bearing exercise is stated in the specification. This is in line with the requirements of the 2013 paper where there was a similar question.

Incorrect responses were often too general, eg exercise, weight training, swimming and therefore not credited. Similarly, those that referred to drinking milk, or taking calcium supplements failed to gain credit. However, many candidates made good references to walking, running or jogging or simply stated 'weight-bearing exercises' and achieved the mark.

(c) Some vitamins and minerals can increase bone strength.

lead to a reverse in health.

Apart from diet, how else can a person increase their bone strength?

(1)

Bone strength can be improved by participating in regular weight-bearing activities such as jogging.



### ResultsPlus Examiner Comments

This candidate gives a complete response securing the available mark for this question. They state that we should take part in regular weight-bearing exercise and give the example of jogging.

Either of these parts of the response would have been sufficient for credit for this 1 mark question.

**1 mark**



### ResultsPlus Examiner Tip

Applied examples are often helpful to confirm your knowledge about a question.

(c) Some vitamins and minerals can increase bone strength.

Apart from diet, how else can a person increase their bone strength?

(1)

by doing weight bearing exercises



### ResultsPlus Examiner Comments

In this example the candidate identifies correctly that weight-bearing exercise should be used.

**1 mark**

## Question 6 (d)

This question asked candidates to explain why we should not exercise immediately after eating a large meal. Three marks were available and there were five possible ways candidates could achieve a mark. This made the question accessible to candidates but also provided opportunity for good differentiation between them.

The focus of the question was on blood shunting but recognition that time is needed to digest food/food would not be completely broken down if exercising immediately, was also credited.

The majority of candidates gained at least one mark for this question by identifying that time was needed fully to digest food. Those responses that then focused on oxygen delivery (rather than blood flow) or access to nutrients from digested food for exercise remained at one mark. Many candidates made statements about feeling sick, getting a stitch, cramp, or indigestion, often as a consequence of food not being fully digested but no further credit was available for this. However, many candidates knew and understood the role of blood/vascular shunting and how it worked to alter blood flow to the digestive and muscular systems and gained maximum marks, covering all of the points on the mark scheme.

(d) Explain why we are told not to exercise immediately after eating a large meal.

(3)

After we eat, our blood goes to our digestive system to digest food. If we exercise our blood needs to go to our muscles to transport  $O_2$  around the body - This is blood shunting. This means that the food cannot digest properly - This means we will not get vital nutrients from the food we just ate.

(Total for Question 6 = 6 marks)



**ResultsPlus**

**Examiner Comments**

This is an excellent response, which covers four of the available points from the mark scheme, and thus gains the maximum marks available.

Credit is given for identifying that blood will be needed initially at the digestive system but that if a person exercises it is then needed at the muscles.

Credit is also given for recognition of the correct term for this process 'blood shunting'. A consequence of this is also given, ie the food cannot be digested properly.

**3 marks**



**ResultsPlus**

**Examiner Tip**

This is a three mark explain question. Note how this candidate has given a consequence to their response: they begin their explanation by stating some facts and then explain the impact of this.

This is a good format to follow when giving explanations.

(d) Explain why we are told not to exercise immediately after eating a large meal.

(3)

Because there is more blood going to ~~your~~ your digestive system to help digest the food and if you start exercising then a vascular shunt will occur and more blood will go towards the working muscles to give them oxygen for respiration so your meal won't digest properly.

(Total for Question 6 = 6 marks)



**ResultsPlus**  
Examiner Comments

This response also gains three marks.

Credit is given for the first statement 'because there is more blood going to your digestive system to digest food'. This indicates that blood supply is required for digestion.

Credit is also given for the statement 'if you start exercising then a vascular shunt will occur and more blood will go towards the working muscles'. Two marks are awarded for this statement, 'vascular shunt' and increased blood flow to muscles.

(Had four marks been available a fourth point is also made 'so your meal won't digest properly'.)

**3 marks**

## Question 7

The majority of candidates scored at least 1 mark for this question. In order to gain both marks responses needed first to identify a characteristic of a mesomorph body type and then link this to the 100m. Occasionally, characteristics of an ectomorph would be given, or named performers, eg Usain Bolt, Mo Farrah, but many candidates identified mesomorphs correctly as muscular or as having broad shoulders with a narrow waist. Often responses finished here, without linking to the 100m, or identified that additional muscle increased power/strength but again did not link this to the 100m.

Candidates who described the requirements of 100m sprinters without first identifying a characteristic of mesomorphs, eg they need to be able to run fast/power out of the blocks, were not credited. This was because the question was asking about characteristics of mesomorphs, which had not been addressed in these cases.

Correct, full, responses linked increased muscle with increased speed in the race (due to increased power) or a more forceful/explosive start.

7 Describe a characteristic of a mesomorph that makes it the ideal body type for 100m sprinters.

A mesomorph has a high muscle percentage in his body which will mean he has lots of power to drive out of the blocks and sprint quickly.

(Total for Question 7 = 2 marks)



**ResultsPlus**

**Examiner Comments**

This response gained two marks. A characteristic of 'high muscle percentage' is given and the impact of this to the 100m runner is given, ie means he will have 'lots of power to drive out of the blocks and sprint quickly'.

In fact, this candidate has identified two possible impacts - drive out of the blocks and sprint quickly. Either would have been acceptable for credit provided in the context of muscular body type.

**2 marks**



**ResultsPlus**

**Examiner Tip**

There are several characteristics of a mesomorph body type that the student could have listed, but not all of these would be as easy to apply to the 100m. It is important to read the whole question to make sure your initial choice, in this case of characteristic, does not make the next part of the question difficult.

Be prepared to change your first answer if this is the case! For example wide shoulders, narrow waist is also a characteristic but this would be harder to apply for the second part of the question.



7 Describe a characteristic of a mesomorph that makes it the ideal body type for 100m sprinters.

A characteristic for a mesomorph that sprints 100m is wide shoulders with narrow hips and muscular in the legs with barely any fat just muscle.

(Total for Question 7 = 2 marks)



**ResultsPlus**

**Examiner Comments**

This candidate gained 1 mark for this response.

Whilst they give plenty of characteristics of the mesomorph body type these are not then applied to the 100m.

**1 mark**



**ResultsPlus**

**Examiner Tip**

Read the questions carefully. This question is worth two marks and asks for 'a description' of 'a characteristic' therefore only one is required. However, the description should link to the context of the question, in this case 100m.

7 Describe a characteristic of a mesomorph that makes it the ideal body type for 100m sprinters.

Mesomorphs are large and have a high muscle mass. This allows sprinters to get more power in their strides allowing them to be faster during a race.

(Total for Question 7 = 2 marks)



**ResultsPlus**

**Examiner Comments**

In this example the candidate does link the characteristic of high muscle mass to the 100m sprint and gains both available marks.

**2 marks**

## Question 8 (a)

To gain the three available marks for this question candidates were required to identify an item of clothing from the image that reduced risk and explain how this item reduced risk. This was achieved by stating a possible injury and then giving a reason how the item of clothing prevented this specified injury from occurring.

This question was answered well, with the majority of candidates achieving two marks, making good use of the image provided. Helmet was by far the most popular correct item of clothing stated, although some did reference goggles, tight clothing, gloves, and leg padding, equally effectively.

Those candidates that stated helmet often talked further about head injury/brain damage or concussion, gaining a second mark for identifying a specific risk but relatively few candidates then explained how this risk was reduced, ie by providing an additional layer that could reduce the impact on the head. Occasionally candidates would identify helmet and explain this had additional layers to act as a shock absorber but did not indicate a possible risk that this was designed to reduce, so again scored two rather than three marks.

A significant number of candidates did gain three marks for this question.

(a) Identify one item of protective clothing visible in Figure 3 and explain how this helps to reduce the risk of injury.

(3)

Item of clothing

helmet.

Explanation

This helps reduce the risk of a head injury in case she was to fall on her head as the helmet would take most the impact of the fall and not the skull/brain itself so would reduce things such as a bleed on the brain or skull fracture.



**ResultsPlus**  
Examiner Comments

In this example the candidate achieves all three marks. They identify an item of clothing (helmet), they explain how the helmet reduces risk (by acting as a shock absorber if the rider falls) and a specific risk that this reduces (skull fracture).

**3 marks**

- (a) Identify **one** item of protective clothing visible in **Figure 3** and explain how this helps to reduce the risk of injury.

(3)

Item of clothing

knee pads

Explanation

If you fall off ~~up~~ to the bike onto your knees the knee pads absorb the impact therefore reducing the risk of being injured and breaking ~~your~~ your leg. It also avoids grazing the skin at the knee.



**ResultsPlus**

**Examiner Comments**

This example response gained three marks.

Knee pads are identified as the risk-reducing item of clothing, the candidate explains they reduce risk of leg breaks by absorbing the impact should the rider fall.

Although the candidate has identified knee padding and the injury relates to the leg, given the image (which shows the padding covering the knee and leg) this can be credited.

A further comment is also made regarding reducing the risk of grazing but this is not directly linked to 'absorbing impact', however three marks have already been achieved.

**3 marks**

## Question 8 (b)

For this part of the question candidates needed to identify another risk reduction measure, other than protective clothing, thus making the question more challenging than part (a) initially because there was no additional stimulus material and also the options to choose from were reduced (no clothing). In addition to this candidates needed to consider something that was done prior to the main activity, therefore reference to rules applied during an activity would not gain credit. Despite these restrictions candidates still answered the question well, with the majority scoring two marks. The complete mark range was utilised with a significant number of candidates achieving maximum marks.

A few candidates identified application of the rules within a game as a risk-reduction measure. Whilst accurate, as mentioned above, this did not address the requirements of the question because the focus was on what could be done prior to activity, rather than during. The majority of correct responses identified the warm-up or checking the pitch/equipment as a risk-reduction measure and gave explanations to support this. It was pleasing to note that very few candidates stated items of protective clothing (thus following the question rubric). Some candidates made reference to the PAR-Q, occasionally linking this to health for two marks, but often incorrectly using as a fitness test. The mark for identifying the risk-reduction measure was very accessible, with few candidates being able to identify a specific risk, and with even fewer candidates stating why this was the case. Thus, the question differentiated well between candidates.

Correct two mark responses often linked a lack of warm up to pulled muscles and pitch inspection to removal of glass or filling in of pot holes.

(b) Risk can also be reduced before the start of any physical activity.

Identify a risk reduction measure, other than protective clothing, that should be carried out **prior** to physical activity and explain how this helps to maintain wellbeing.

(3)

Risk reduction measure

Pitch check

Explanation

Before starting a game of rugby you should check the pitch for sharp objects people could fall on and hurt themselves. On level ground people could twist their ankles on.



**ResultsPlus**

Examiner Comments

This response gained the maximum 3 marks.

The candidate identifies a risk-reduction measure (pitch check/inspection), what exactly needed checking (sharp objects) and how these could cause a risk.

The anticipated final part of this response would have been in relation to cuts from the sharp objects. The candidate actually identified the items as a tripping hazard resulting in a twisted ankle. This was an equally valid response and therefore credited.

**3 marks**

(b) Risk can also be reduced before the start of any physical activity.

Identify a risk reduction measure, other than protective clothing, that should be carried out **prior** to physical activity and explain how this helps to maintain wellbeing.

(3)

Risk reduction measure

Complete a PAR-Q

Explanation

This helps maintain wellbeing because it identifies any health problems the person has, such as ~~the~~ history of heart attacks. It allows the intensity of the physical activity to be suited to the individual so that they don't experience negative health effects.

(Total for Question 8 = 6 marks)



**ResultsPlus**  
Examiner Comments

This is an excellent response.

In this example the candidate has identified the PAR-Q as a risk-reduction measure, explaining that this helps maintain well-being by identifying pre-existing health issues so that the intensity of the activity can be made to suit the individual.

**3 marks**

## Question 9 (a) (i)

Question 9 (a) comprised three parts. Part 9 (a) (i) was challenging for candidates but even so, the majority identified correctly that a decreased resting heart rate was a long-term effect of exercise.

## Question 9 (a) (ii)

Part 9 (a) (ii) was very well answered, most candidates identifying that there would be an increase in blood flow as a result of the heart beating more rapidly in response to exercise. Provided the word used by candidates implied an increase, their response was credited even if not grammatically correct, eg faster, quickly.

## Question 9 (a) (iii)

Part 9 (a) (iii) was the most challenging with more candidates answering incorrectly than correctly. An example of a long-term training effect on the cardiovascular system was required. Whilst some candidates gave short term effects, eg increased heart rate, increased breathing rate, others identified long-term adaptations but to the respiratory or muscular systems, eg hypertrophy. Popular correct responses were cardiac hypertrophy, a drop in resting heart rate or capillarisation.

(iii) Rest **between** exercise sessions allows the cardiovascular system to adapt.

*Cardiac hypertrophy* is an example of how the cardiovascular system may adapt.

(1)



### ResultsPlus Examiner Comments

This candidate has identified an appropriate adaptation to the cardiovascular system.

**1 mark**



### ResultsPlus Examiner Tip

If a question has a word in bold text this means it is important, make sure you understand the importance of these words within the question context.

In this example **between** is important because this is the time when the body adapts to training.

To answer this question successfully the candidate needed to give an example of a long-term adaptation that happens to the cardiovascular system.

(iii) Rest **between** exercise sessions allows the cardiovascular system to adapt.

*Capillarisation* is an example of how the cardiovascular system may adapt.

(1)



### ResultsPlus Examiner Comments

Capillarisation was another popular correct response.

**1 mark**

### Question 9 (b)

Candidates were asked to state the effect of alcohol on resting blood pressure. This question was answered well, with the majority of candidates indicating that blood pressure would be increased. However, some candidates cited alcohol as a 'relaxing tonic' therefore reducing blood pressure.

(b) State the effect of alcohol on resting blood pressure.

(1)

Blood pressure gets higher.

(Total for Question 9 = 4 marks)



**ResultsPlus**

**Examiner Comments**

This response gained the available mark for identifying that blood pressure increases as a result of consuming alcohol.

**1 mark**

## Question 10

This question was answered well, and differentiated effectively between candidates, depending on the level of response. Credit was given to those recognising that one muscle needed to relax to allow its 'pair' to contract. Many candidates identified correctly the bicep/tricep operating at the elbow and/or the hamstrings/quadriceps operating at the knee for a second mark.

Few candidates abbreviated muscle names, demonstrating knowledge of the correct technical terms. This was pleasing to see, although some confused the terms for the muscle and/or joint action, talking of flexion and extension of muscles. The remaining two marks were for the correct description of the muscle action causing flexion or extension at each joint. Thus, a candidate who stated that the biceps contracted to bring about flexion at the elbow whilst the triceps relaxed would score three marks, the fourth mark being obtained if they identified the action of either the hamstring or quadricep on the knee.

Generally, responses were clear and succinct with the majority of candidates achieving at least one mark. Common incorrect responses included some or all of the following: focus on the contracting muscle only, rather than the action of the pair (required for points 1 and 2 on the mark scheme), incorrect use of the terms agonist and antagonist (eg the Quadriceps is the antagonist which contracts in knee extension), vague statements about muscle action (eg the muscles allow movement) or confusion over the action of the quadriceps and hamstrings (eg the quadriceps contract to cause flexion at the knee).

**10** Describe the antagonistic muscle action that allows flexion and extension at the elbow **and** knee.

The antagonistic muscle pairs at the elbow joint are the biceps and triceps. For extension at the elbow joint the tricep contracts whilst the bicep relaxes and for flexion at the elbow joint the bicep contracts whilst the tricep relaxes. The antagonistic muscle pairs at the knee are the quadriceps and hamstrings. For flexion the hamstrings contract whilst the quadricep relaxes and for extension the quadricep contracts whilst the hamstring relaxes. These antagonistic pairs bring about movement.

(Total for Question 10 = 4 marks)



**ResultsPlus**  
Examiner Comments

This candidate gained four marks for their answer to this question. They identify the muscles operating at the elbow (bicep and tricep) and then describe the action of these muscles to bring about extension and then flexion at the elbow (bicep contracts whilst the tricep relaxes).

They follow this format to address the movement at the second joint, identifying the hamstrings and quadriceps and their action to bring about movement at the knee (eg for flexion at the knee the hamstrings contract whilst the quadriceps relax).

This is a very clear, succinct response. The candidate identifies the relevant muscles clearly and uses the correct terminology in relation to muscle and joint action.

**4 marks**





**ResultsPlus**

**Examiner Tip**

Note the use of bold text here. This is to emphasise that you need to talk about both joints, not just one, to address the question fully.

**10** Describe the antagonistic muscle action that allows flexion and extension at the elbow **and** knee.

At the elbow, the bicep contracts whilst the tricep relaxes to allow flexion at the elbow. When extending, the tricep contracts and the bicep relaxes. At the knee, for flexion to occur the hamstring contracts whilst the quadriceps relaxes. When extending the quadriceps contracts and the hamstring relaxes. One muscle must contract whilst the other relaxes to allow extension and flexion to occur.

**(Total for Question 10 = 4 marks)**



**ResultsPlus**

**Examiner Comments**

This example also gains 4 marks.

The opening statement gains 3 of these marks because the candidate identifies that the biceps and triceps operate at the elbow, that one of these muscles contracts whilst the other relaxes and that flexion occurs due to the biceps contracting.

The fourth mark is achieved half way through the response where the student states that the hamstrings contract whilst the quadriceps relax to bring about flexion at the knee.

**4 marks**

## Question 11 (a)

This question asked candidates to state two ranges of movement (other than flexion to extension) that are possible at a ball and socket joint.

Despite the example of a range of movement in the question 'flexion to extension' students often failed to give a range, stating abduction or adduction but not necessarily both. Unless both were stated the response was incomplete and therefore could not be credited.

The other possible range of motion is rotation.

The majority of candidates scored one mark for this question.

11 The shoulder is an example of a ball and socket joint. One possible range of movement at a ball and socket joint is flexion to extension.

(a) State the other **two** ranges of movement possible at a ball and socket joint. (2)

1 abduction to adduction

2 adduction rotation



**ResultsPlus**  
Examiner Comments

This response gains 2 marks because the two ranges of movement have been stated correctly.

**2 marks**



**ResultsPlus**  
Examiner Tip

Note how this candidate has underlined important additional information from the question. By underlining 'flexion to extension' they are reminding themselves not to use this as one of their answers.

11 The shoulder is an example of a ball and socket joint. One possible range of movement at a ball and socket joint is flexion to extension.

(a) State the other **two** ranges of movement possible at a ball and socket joint. (2)

1 abduction to adduction

2 ~~adduction~~ rotation



**ResultsPlus**  
Examiner Comments

In this example, once again the candidate achieves both available marks for correct identification of the ranges of movement at a ball and socket joint.

**2 marks**

11 The shoulder is an example of a ball and socket joint. One possible range of movement at a ball and socket joint is flexion to extension.

(a) State the other **two** ranges of movement possible at a ball and socket joint.

(2)

1 One off movement is Abduction

2 Another movement of ball and socket joint is Adduction.



**ResultsPlus**

**Examiner Comments**

Where a candidate only identified abduction and adduction, even if this was over two lines of the response, credit was given, so in this example the student achieved 1 mark.

**1 mark**

## Question 11 (b)

Candidates were required to give a specific sporting example that used flexion to extension of the shoulder joint. This question was well answered, with the majority of candidates gaining credit for the example they supplied.

Whilst some latitude was given when considering the responses it had to be clear from the answer that the specified movement would result in flexion and extension at the shoulder joint. Very often, this would be as a result of the 'follow through' to complete the action, eg as the arms lower after blocking the ball at the net in volleyball. Where candidates did not gain the mark this was often due to the non-specific nature of their example, eg hitting the ball in tennis, crown green bowls, boxing, swimming, butterfly, or because the action did not involve an over-arm movement, eg bicep curl. Popular correct responses included bowling in cricket, front crawl arm action in swimming or a tennis serve.

(b) Give an example of a specific sporting action that uses the range of movement flexion to extension at the shoulder joint.

(1)

In cricket, when bowling and the arm is raised with the ball in the hand and above the head and after the ball has been released and the arm comes down by your side. (Total for Question 11 = 3 marks)



**ResultsPlus**  
Examiner Comments

This is a very clear response.

Flexion of the shoulder is stated clearly in the description (when the arm is above the head) and includes the follow-through after the ball has been released and the arm returns back to the side of the body.

**1 mark**

## Question 12 (a)

The largest proportion of candidates achieved two marks for this question although there was a good distribution of marks from one to three, with a smaller number of candidates achieving maximum marks.

Candidates were asked to describe two ways to reduce high blood pressure. Most could identify at least one if not two ways therefore gained two marks but found it difficult to explain or develop their answers to describe (rather than identify) how their chosen way would physiologically reduce blood pressure. Popular correct responses related to many of the different aspects of diet that can have an effect and to positive lifestyle choices such as the need for exercise, or to stop smoking.

Those candidates who gained three or four marks did so mainly by identifying reducing cholesterol therefore reducing fatty deposits building up in the arteries, restricting blood flow; or through the use of exercise to relieve stress, which in turn reduced blood pressure.

12 Sam is studying GCSE PE.

As part of his course, he learns about ways to reduce high blood pressure.

(a) Describe **two** ways to reduce high blood pressure.

(4)

1 Reduce LDL intake, this causes plaques to form in arteries therefore increasing pressure so a reduction in levels of LDL will help reduce high blood pressure.

2 Partake in regular exercise, keeps arteries and veins supple and clear reducing pressure. Can also reduce weight, if over weight, which lowers blood pressure too.



### ResultsPlus Examiner Comments

This response gained full marks.

The first description identifies reduction in cholesterol intake (in particular LDL's) to reduce plaque formation in the arteries (which would reduce the lumen thereby increasing blood pressure).

The second description identifies the needs for regular exercise to keep the arteries supple and clear. By maintaining the suppleness of the arteries they will be able to better cope with blood flow so this will reduce blood pressure.

They also add as an additional point that regular exercise would reduce weight if overweight, which could also have been credited if maximum marks for the question had not already been reached.

**4 marks**

12 Sam is studying GCSE PE.

As part of his course, he learns about ways to reduce high blood pressure.

(a) Describe **two** ways to reduce high blood pressure.

- (4)
1. No alcohol, as alcohol is one of the key factors that leads to an increase in blood pressure, if no alcohol was consumed it would reduce high blood pressure.
  2. Regular participation in exercise would reduce high blood pressure and also keep you active.



### ResultsPlus

Examiner Comments

In this example, the candidate clearly identifies two factors that could reduce blood pressure (reduce alcohol, take part in exercise) but they do not describe how these factors achieve this, therefore this response only gains 2 marks.

**2 marks**

1. A way to reduce high blood pressure is by monitoring that the amount of salt intake <sup>someone has</sup> ~~to~~ has by looking at the amount of salt goods contain. Too much salt will lead to high blood pressure.
2. Stress relates to blood pressure. The higher the stress level the higher the blood pressure. To reduce stress and blood pressure people like to play sports, and this should reduce stress levels and blood pressure.



### ResultsPlus

Examiner Comments

In this example the candidate gains 3 marks.

They identify an aspect of diet that could have a negative effect on blood pressure (too much salt) but do not develop this response further.

However in their second example, they give a good description of how participation in sport can help to reduce stress, which in turn will reduce blood pressure.

**3 marks**

## Question 12 (b)

This question was extremely well-answered with the majority of candidates achieving the available mark. Candidates were asked to name a fitness test (other than the Harvard Step Test) to measure cardiovascular fitness. The majority gave a variation of Cooper's 12 minute run but all related to acceptable versions on the mark scheme and therefore gained credit.

A few candidates made reference to the 'bleep test' or treadmill test, which was also credited. Very few candidates failed to attempt this question drawing no doubt on the practical work they engaged in during their course.

During his GCSE PE course Sam designed a Personal Exercise Programme (PEP).

His aim was to improve his cardiovascular fitness.

One popular test to measure cardiovascular fitness is the Harvard Step test.

(b) Name another fitness test that Sam could use to measure his cardiovascular fitness.

(1)

12 minute Cooper run.



**ResultsPlus**  
Examiner Comments

This candidate gained 1 mark for this correct response.

**1 mark**

During his GCSE PE course Sam designed a Personal Exercise Programme (PEP).

His aim was to improve his cardiovascular fitness.

One popular test to measure cardiovascular fitness is the Harvard Step test.

(b) Name another fitness test that Sam could use to measure his cardiovascular fitness.

(1)

~~12 minute Cooper's run test~~ treadmill test



**ResultsPlus**  
Examiner Comments

Some candidates referred to the treadmill test, another possible correct response.

**1 mark**

### Question 12 (c) (i)

Q12 (c) was made up of three parts. The first, Q12 (c) (i) proved surprisingly difficult for candidates. The question asked for the name of the heart rate taken after exercise, therefore recovery rate or recovery heart rate were the expected answers. Whilst some candidates identified this correctly, others stated working or resting heart rates, some even stated stroke volume and cardiac output.

### Question 12 (c) (ii)

In contrast, part 2 of Q12 (c) (ii) which asked why someone would measure their resting heart rate as part of their PEP, was well answered with the majority of candidates answering correctly, eg 'to see if fitness increases' or 'to see if it decreases which shows an improvement in his fitness'. A minority failed to score the mark due to vague responses, eg 'to track/measure progress' or 'to see if it changes'

(ii) Why would Sam measure his resting heart rate each week as part of his PEP?

To see if Sam is becoming fitter each week (1)



**ResultsPlus**

**Examiner Comments**

This is an example of a correct response: the candidate understands that a drop in resting heart rate can be taken as a measure to show improvements in fitness.

**1 mark**

(ii) Why would Sam measure his resting heart rate each week as part of his PEP?

to see if he has got fitter if (1)  
his resting heart rate is lower he will  
be able to state he is fitter



**ResultsPlus**

**Examiner Comments**

This correct response goes slightly further than the previous example, clearly stating that he is checking to see if his fitness is improving and making the link that a drop in resting heart rate indicates improvement in fitness.

**1 mark**



### Question 12 (c) (iii)

This is the third part of Q12 (c). This part of the question was also well-answered, despite asking candidates to represent their knowledge in a different way.

Candidates were asked to draw a line on the graph to show likely heart rate values during a three minute rest period. The starting point of 140 bpm was placed on the graph. Despite the request to draw a line some candidates simply added some points to the graph. If a line was not recorded no credit was given. As the question asked for likely heart rate values not only did the candidate line need to show a drop in heart rate over time it also had to show this within reasonable (and quite wide) parameters, ie dropping below 120 bpm but above 40 bpm. If a plateau was included this was only credited if on or after two minutes.

Where credit was not given this tended to be due to the lack of a line connecting 'the dots', or a line that went outside of the required parameters, eg went down to 0 bpm or showed an increase during the recovery period.

The graph in Figure 4 shows Sam's heart rate one minute after completing the fitness test.

(iii) Draw a line on the graph to show what is likely to happen to Sam's heart rate during the three-minute rest period.

(1)

Sam's heart rate values at one-minute intervals after exercise

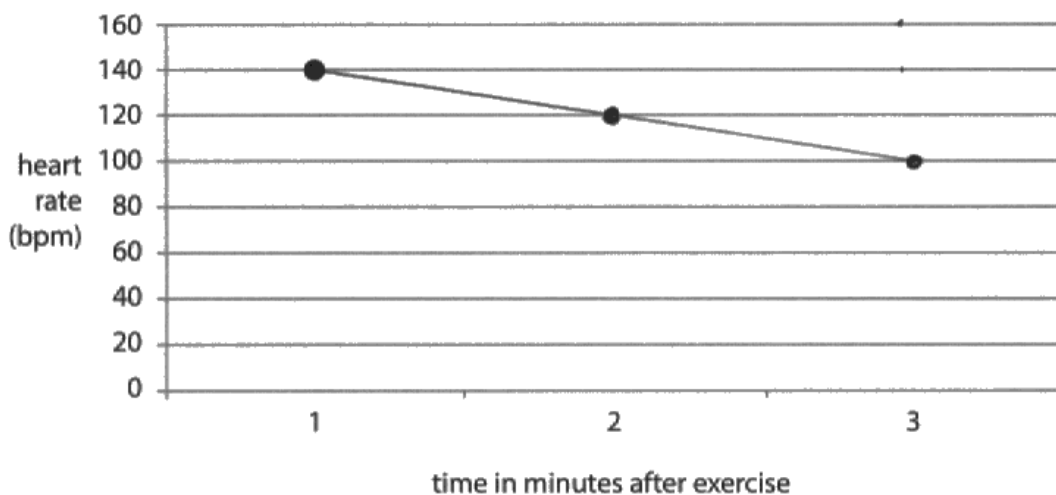


Figure 4



**ResultsPlus**  
Examiner Comments

This is an example of a typical correct response.

**1 mark**



**ResultsPlus**  
Examiner Tip

Take care to read the instructions in the questions. This question asks for a line to be drawn therefore it is important to include one.

Sam's heart rate values at one-minute intervals after exercise

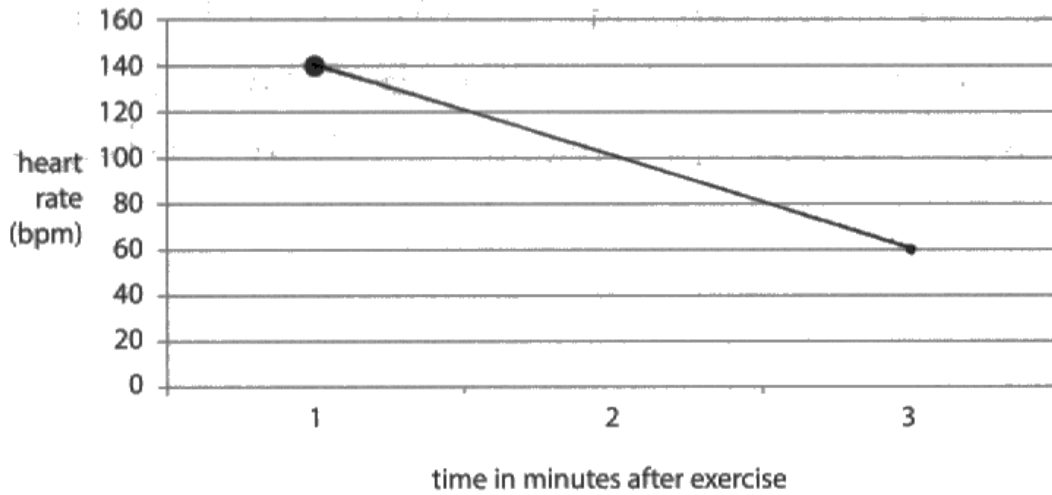


Figure 4



**ResultsPlus**  
Examiner Comments

This example also gains 1 mark as the line drawn falls within the required parameters. The fact that no additional point has been added at the two minute mark is not important because candidates were asked to draw the line, as this one has done.

**1 mark**

Sam's heart rate values at one-minute intervals after exercise

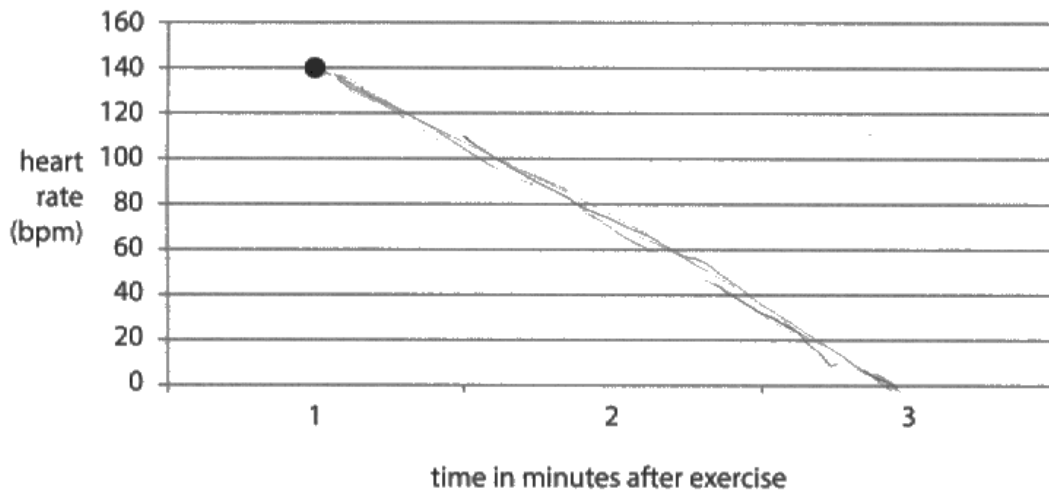


Figure 4



**ResultsPlus**  
Examiner Comments

Although a line has been drawn, this is a good example of where the line falls outside of acceptable parameters and therefore does not gain credit.

**0 marks**

## Question 12 (d)

This question was well-answered, with the majority of candidates achieving one or two marks.

Candidates were asked to give two immediate effects of an exercise session on the respiratory system. There were two things for candidates to consider: the first, what are the immediate effects of exercise, the second, which of these links to the respiratory system. Many could identify an immediate effect but these were not always restricted to the respiratory system.

A number of candidates, for example gave increased heart rate or stroke volume as one of their responses. Long term effects were also occasionally given, eg hypertrophy, capillarisation, increased vital capacity. There were four possible correct responses: increased rate, depth of breathing, oxygen debt, or increased tidal volume (credit being given for technical language/knowledge rather than a general statement about increased depth/rate of breathing which could bring about increased tidal volume).

(d) Give **two** immediate effects that this exercise session would have on Sam's respiratory system.

(2)

1. there would blood shunting
2. oxygen debt



**ResultsPlus**  
Examiner Comments

Whilst this candidate does identify two immediate effects of exercise only one relates to the respiratory system (oxygen debt) therefore only 1 mark gained.

**1 mark**

(d) Give **two** immediate effects that this exercise session would have on Sam's respiratory system.

(2)

1. Increased breathing rate
2. Increased breathing ~~rate~~ depth depth



**ResultsPlus**  
Examiner Comments

In this example the candidate achieves both marks for increased breathing rate and increased depth of breathing.

**2 marks**

## Question 13

This is the first of the extended answer questions. This question focused on the principles of training, asking how they could be used to improve fitness, also asking candidates to include examples to support their discussion.

The extended answer questions are marked using a levels based mark scheme rather than points based, which differentiates these questions from the rest of the paper. To progress through the levels candidates need to show evidence of the ability to write coherent discussion points that relate to the question. In this example, this would be in the form of linked points that showed progression of an argument that links the application of the principles of training to an increase in fitness.

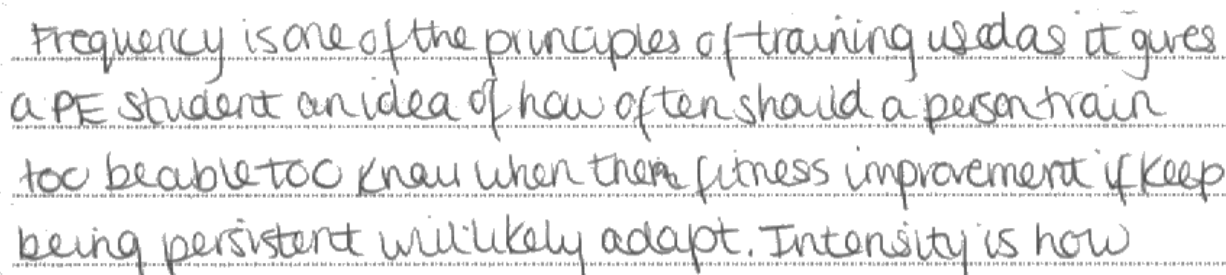
This means that a candidate could write a lot of facts about the principles of training, could describe them in detail but still remain at Level 1 due to a lack of linkage and application of their knowledge to the question context. A Level 3 response (gaining 5 or 6 marks) would need to show developed discussion points about a number of different principles of training and how they can be used to improve an aspect of fitness, whilst a Level 1 response (1 or 2 marks) might simply describe the principles of training without applying them to demonstrate how they could increase aspects of fitness.

For example, a Level 1 response might say that rest and recovery, which is making sure that a person does not train hard every day, was needed to give the body time to adapt to increased fitness, compared with a Level 3 response which would extend this idea through inclusion of an appropriate example. Eg, after a hard strength training session it is important to allow time to rest and recover so that the tiny micro-tears as a result of the training can repair and undergo hypertrophy so that strength gradually increases due to the increase in muscle size. A Level 2 response would also include these types of developed discussion points but would not cover as many aspects as a level 3 response. For example a Level 2 response may focus on two aspects of the FITT principle rather than broadening the response to include a greater variety of principles.

Although in most cases candidates knew what the principles of training were (possibly over reliance on FITT) and could describe them, responses failed to show how these principles caused adaptations to occur so the GCSE PE students became fitter from applying them.

Where candidates moved into Level 2 they were able to provide developed statements, linking the principles of training with their impact on improvement in specific areas of fitness. In some cases candidates often made the point that increased fitness (often strength) came from the adaptations that occurred after appropriate rest and recovery or from progressive overload. There were some very good answers, which were concise and included several developed discussion points plus simple statements to enable the candidates to access the full six marks. In some cases, candidates had written almost two sides in their response but scored zero marks because they had misread the question, discussing the components of fitness or SMART targets rather than principles of training and therefore failed to address the question requirements.

Many candidates have difficulty with the discursive demands of these extended questions: as a result the majority achieve two marks for good knowledge recall.



Frequency is one of the principles of training used as it gives a PE student an idea of how often should a person train too be able to know when their fitness improvement if keep being persistent will likely adapt. Intensity is how

hard you work, this can be incorporated in with progressive overload which gradually increases how much you do an activity. For example ~~one day~~ this week I will do <sup>3 sets of</sup> 10 situps and then the next week you progressively overload I will do 3 sets of 13 situps which means the intensity has increased so that your body can adapt to these new changes. Another is time this is for how long you do it for. It should be given enough time so that changes happen as if you exercise for a short period of time no effective change will be done to the body as it did not force or give the body a challenge e.g. going to the gym and spending 15 minutes in there. It may have ~~not~~ not even gone. Also the type of training you do must be important, as it allows you too increase your fitness and performance. Lets say for example a person was a long distance runner and did cross training. This wouldn't be very helpful as it is using different training methods to work on different aspects of health related fitness and skill related fitness when the ideal <sup>type of</sup> training would be continuous training.

Other principles the GCSE student can abide by is specificity, individual needs, rest and recovery. Specificity allows you too train to meet the demands of the sport so someone who was involved in rowing when during her training session would use a rowing machine. A rowing machine would help the person ~~to~~ increase the muscular endurance in their arms as the repeated motion of using the arm to flex and extend. Another principle is individual needs which is set out too help you as an individual this is

normally questioned by a par q. if registering for the gym to know what your life style is e.g. smoke, any



## ResultsPlus

### Examiner Comments

This extract is from a Level 2 response.

In this extract there is a developed discussion about the principle of specificity. The paragraph begins by listing some other methods of training (on page 1 the candidate describes all elements of the FITT principle) before looking in more detail at the principle of specificity.

This principle is described and then knowledge is applied through the use of a relevant fitness related example, ie a rower using a rowing machine to increase the muscular endurance in their arms due to the repeated action of using the rowing machine in training.

This shows a level of understanding above pure recall of facts as is indicative of work at Level 2 or 3.

The ~~principle~~ principle of training rest and recovery can help with a students <sup>fitness</sup> ~~progress~~. so they could train 3 times a week and leave 2 times a week for there muscles to repair ~~and rest~~ the damaged tissue from exercising. This would be to stop any injuries that may occur if you do too much exercise for example 5 times a week exercising with no breaks, this would be no good for your body because it would cause injury which would decrease in fitness as you would have to stop sport to recover.



## ResultsPlus

### Examiner Comments

This is also an extract from a Level 2 response. In this extract the principle of rest and recovery is discussed although in a slightly different way from that expected.

Rather than focus on the positives there is discussion re the potential negative impact of overtraining on fitness levels.



## ResultsPlus

### Examiner Tip

If asked to 'discuss' make sure you explain or give reasons for the points you are making, rather than just making a statement of fact.

This ties into progressive overload and the FITT principals (Frequency, intensity, time, type), <sup>in successive sessions</sup> this means that training should get harder as it continues in order to improve fitness. "Harder" through the FITT principals; frequency, intensity, time, type. Type means what methods of training students should use (i.e. weight, football etc) as a long-distance runner would get ~~no~~<sup>no</sup> benefit/minimal benefit from weight training as it has little correlation with the sport (weight training ~~is~~ generally focuses on muscular strength - ~~runners~~ runners don't need a lot of this).



**ResultsPlus**

Examiner Comments

In this extract from a Level 3 response, the candidate discusses the principle of Type (from the FITT principle). They describe its meaning and discuss why it is important through the use of an applied example, ie a long distance runner would not engage in weight training. They would receive minimal benefit from this because there is little correlation between the method of training and the sport. Weight training focuses on muscular strength which is less important to long distance runners.

The principles of training are, specificity, progressive overload, individual needs and rest and recovery.

These principles of training can improve the fitness of a group of PE students. For example, to make their training specific, they must decide which sport, or area of the body they wish to improve on. For example if ~~one~~ the GCSE PE students ~~is~~ are long distance runners, <sup>they</sup> ~~he~~ will want to work on <sup>their</sup> ~~the~~ ~~cardiovascular~~ cardiovascular system rather than ~~his~~ muscular strength.

Progressive ~~overload~~ overload means slowly increasing the amount of exercise you do. For example if the group of GCSE <sup>PE</sup> ~~PE~~ students are trying to improve their ~~muscular~~ muscular strength, and more specifically their leg strength, they could do <sup>five</sup> 5 reps of a 10KG squat in the first week, <sup>ten</sup> 10 reps of a 10KG squat and then in the third week do <sup>five</sup> 5 reps of a 20KG squat. This will help improve fitness without injury.

Individual needs means suiting the training to your own needs. This means when designing the training programme the students each must pick exercise which will be suited for their sport. For example, if a <sup>swimmer</sup> ~~runner~~ from the group is going to train on the track, this is not suited for his individual needs; swimmers don't race on tracks! This principle of training will be hard to work on if they are designing their programme for the group of them.

The last principle of training is rest and recovery. This is mainly to prevent injury and allow the cardiovascular system and respiratory system anytime to make ~~changes~~ adaptations to themselves. Rest is the time taken to allow your body to recover, so the students should put in rest days once from every other day.





In this final example we see a level 3 response in its entirety.

The response begins by listing some relevant principles of training, whilst this demonstrates knowledge there is no discussion at this point. Some of the principles are then described, for example specificity is linked to development of a particular area of the body, but how this would improve fitness is not yet discussed. The student does then go on to discuss the application of specificity through linking their description with the use of an appropriate example - that as they are long distance runners they will work on their cardiovascular system (specific area of the body) rather than muscular strength.

The next paragraph discusses progressive overload. We are told what this means and then given an example that links to improving muscular strength. The quality of the example linked to the description of the principle clearly demonstrates how one could apply progressive overload to improve fitness. This is another example of a developed discussion point.

On page two the student considers individual needs, describing the principle as meaning that you must select exercises suitable to your sport and gives an example of a swimmer from the group having to train on a track, and that this would not be effective training for them. They also acknowledge that this principle would be difficult to accommodate because there is a group of the GCSE PE students so the student really relates their answer back to the context of the question. This is another example of a developed discussion point.

Finally they consider the principle of rest and recovery. This principle is clearly described and applied to fitness.

This response demonstrates a good range of knowledge and understanding (not just recall). Four different principles of training are discussed: this demonstrates the required balance and depth indicative of a response at level 3. The response is well written and succinct and gained 6 marks.

## Question 14

This is the second of the extended answer questions. This question focused on the use of steroids to enhance performance. The extended answer questions are marked using a levels based mark scheme rather than points based which differentiates these questions from the rest of the paper.

To progress through the levels candidates need to show evidence of the ability to write coherent discussion points that relate to the question. In this example this would be in the form of linked points that showed progression of an argument discussing the reasons for or against taking steroids to enhance performance. Due to the nature of the question ethical considerations surrounding the use of steroids could also be discussed.

This means that a candidate could write a lot of facts about steroids, describing training or side effects but still remain at Level 1 due to a lack of linkage and application of their knowledge to the question context.

A Level 3 response (gaining 5 or 6 marks) would need to show developed discussion points about a number of points, looking at both reasons for and against the use of steroids, whilst a Level 1 response (1 or 2 marks) might simply list some of the training or side effects of steroid use. For example, a Level 1 response might say that steroids help develop muscle mass, compared with a Level 3 response, which would extend this idea eg, steroids allow the sprinter to train harder for longer so they gain even more muscle mass. This increases their chance of winning because they will have a more powerful start to the race, getting ahead of their opponents. A Level 2 response would also include these types of developed discussion points but would not cover as many aspects as a Level 3 response. For example a Level 2 response may focus on reasons for or reasons against or ethics rather than a mixture of all three areas.

Candidates gave slightly better responses to this question compared to Q13. Although some candidates wrote a paragraph on each type of drug rather than focusing on steroids as required by the question, most did limit their responses to steroids and were able to identify advantages and disadvantages of taking steroids. Most of these responses comprised simple factual statements lacking in any real development/discussion.

The majority of candidates recognised steroids increased muscle mass. Where an example was given candidates often referred to throwing activities or weightlifting. In some responses specific examples were repetitive saying the same thing but for different athletic events, eg shot put thrown further, discuss goes further. The other athletic event used to illustrate the use of steroids was sprinting, with candidates naming elite performers who had been banned for steroid use.

Reasons for taking steroids were given as increasing the chance of winning (through various physiological adaptations). Other reasons included pressure from sponsorship to win and keep their image or gain money. Reasons against often listed some of the side effects but very few of these were developed. Many students made reference to the values and ethics of steroid use, referring to them being 'illegal' within the sporting competition as it gives an unfair advantage and if performers are found taking the drug they may be banned/disqualified from the competition.

Where candidates moved into Level 2 they were able to provide developed statements that often came from the impact of the physiological adaptations that occurred as a result of taking steroids or from good discussion of some of the ethical considerations. Whilst there were some excellent answers that were concise and included several developed discussion points plus simple statements to enable the candidates to access the full six marks, many candidates had difficulty with the discursive demands of the question: as a result the majority achieved 2 marks for good knowledge recall.

Steroids are used to increase the amount of muscle by repairing muscle faster.

Steroids would be used by a sprinter or shotput thrower who need to have a lot of muscle (mesomorph) to be able to be powerful and perform better in these events. As it increases strength and power is strength x speed, then any exercise that power is needed, steroids may be illegally used to improve performance.

Sprinters use power at the start of their race to blast out of the blocks and get into their running stride as fast as they can in the race. Throwers such as shot putters would use power to throw the shot as far as possible.

Steroids wouldn't be used by people doing high jump or long distance as they need to be light to carry their bodies in their discipline, they need to be ectomorphs.

Steroids are illegal in athletics as they give someone an unfair advantage. However, this is also the reason why some athletes use them, this advantage could be the difference between coming 3<sup>rd</sup> and winning a race.

Some athletes have been found guilty of taking them and are handed a lengthy ban from the sport.



### ResultsPlus Examiner Comments

This is an example of a Level 2 response. The answer contains some good developed discussion points but lacks the range required to achieve Level 3. Had the candidate discussed the impact of being banned a little more or focused more on the ethical side of the debate whether steroids should be used, this may have been sufficient to move them into Level 3.

The physiological advantages of taking steroids are discussed, as is the impact on performance, and interestingly so, too, is the impact on a long distance runner where the candidate briefly discusses the relative value of taking steroids from their perspective.

pressure could lead to the performer doubting their own ability, meaning they turn to Steroids in order to gain the advantage they think it will take to win. They may also feel that if they don't win then their image as a sports person and the money they earn might be harmed, as they may lose sponsorships or money because they do not win, and this could affect their lifestyle or the way their family will live. <sup>this</sup> meaning that they take the steroids in order to win to make sure they keep their image. Of course, if they got caught taking performance enhancing drugs then their image would be disgraced and they would lose respect and/or the ability to perform in competitions as a result of bans and suspensions, but that is the risk some people are willing to take in order to achieve their goals.



**ResultsPlus**  
Examiner Comments

In this extract from a Level 3 response there are two developed discussion points. The first relates to the pressure on athletes to win for the fame and fortune they receive and if they fail to win the negative impact on their lifestyle. The second is the reverse of this argument, ie that if found out their image would be disgraced, loss of respect and ability to compete as a result of bans and suspensions but that it is the risk some are clearly willing to take.

Steroids are performance enhancing drugs most typically taken by ~~weightlifters~~ ~~and~~ Sprinters. They enable the body to work harder for longer so it is easier for the athlete to increase their muscle size and strength. This means that their muscle strength and ~~power~~ <sup>power</sup> will be increased which gives them an advantage over other athletes.

Steroids are illegal to take and if you are found to be positive ~~for steroids~~ <sup>for steroids</sup> from a drug test then you are likely to receive a ban from sporting events for your sport. Also it is seen as morally wrong to take steroids because it gives you an unfair advantage and in some cases people who have been found to take steroids have had any past medals or <sup>awards</sup> ~~awards~~ taken from them because people feel that they did not rightfully win. \*

There are also side effects from taking steroids such as a lower sperm count so the athlete has a lower infertility rate. They might also be more aggressive than normal. <sup>And to</sup> ~~for~~ women ~~if~~ if they are taken they can start to acquire more male features such as a beard because steroids ~~are made of~~ contain

Testosterone.

Furthermore ~~it~~ it is not just the athlete who took the steroids that is affected. It brings a bad name for the sport, it can make the sport be portrayed in a negative way in the media and this could mean that the popularity of the sport decreases and less children want to take part in it. Also it can mean that other athletes are questioned as well. ~~They~~ Other innocent athletes may be accused of taking the drugs when they have not which is unfair for the athlete.

\* This could be unfair on others because for example if the person who took drugs was in a relay team then the other athletes in the team will also have their medals revoked.



**ResultsPlus**  
Examiner Comments

This is an example of a Level 3 response.

The opening paragraph contains a developed discussion about the advantage of steroid use to a sprinter.

The second paragraph also contains an extended developed discussion point. There is a statement that steroids are illegal and if found positive from a drugs test athletes are likely to be banned.

This is followed by a discussion around the ethics of the situation: that they give an unfair advantage and the impact of being 'found out' being removal of medals/awards because people felt they did not rightfully win.

The next section mentions some of the possible side effects but these points are not developed. Then there is then an interesting discussion re the impact ethically on the sport, potentially leading to a reduction in the number of participants due to bad publicity. This is a developed discussion point.

The range and quality of this answer places the response a Level 3 with a mark of 6.

## Paper Summary

Based on their performance on this paper candidates are offered the following advice.

- Read all questions carefully to ensure the instructions are followed eg Q2 (a) Classify the following benefits of a healthy, active lifestyle.
- Identify key words in a question - sometimes these are in bold to draw attention to them but this will not always be the case.
- Make examples as clear as possible so the examiner can picture the example being given.
- Pay attention to the command words used in the question and the mark allocation - describe, explain, discuss will need more detailed responses and will be allocated more marks.
- When answering the extended answer question (6 mark question) make sure points are linked to demonstrate the development of an argument.

## **Grade Boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>





Ofqual



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government



Pearson Education Limited. Registered company number 872828  
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE