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Examiner's Report  
Principal Examiner Feedback

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In Physical Education Short Course (3PE0)  
Paper 01 Theory

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## Paper Introduction

Although a new specification with much more theoretical content to cover, candidates' approach in terms of how to respond to the questions asked was not significantly different, although due to the increased length of the paper and reduction in multiple choice questions the paper will have been more challenging for candidates than the previous series, that said, candidates and centres should be congratulated on the preparation for this examination. Candidate responses demonstrated the full range of marks across the majority of questions.

The paper begins with some multiple-choice questions; these are designed to be fairly accessible for candidates. The main section of the paper is devoted to one, two, three or four mark part questions (the question total might be larger than this, but the allocation of marks within the question will have been broken down into parts, e.g. part (a), (b) and so on).

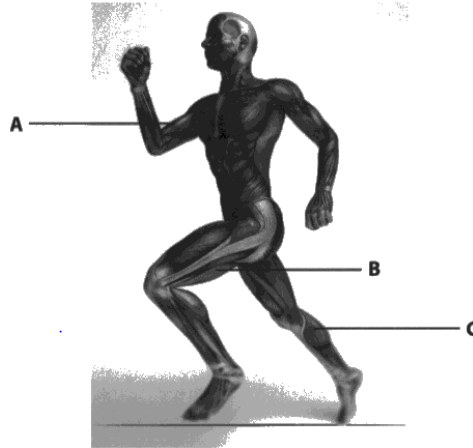
The final section of the paper comprises an extended response question. Although more marks are available for this question, the demand on candidates is the same as in previous series'. Candidates need to demonstrate knowledge, be able to apply this knowledge, and analysis or evaluation the topic being considered in the question, using the knowledge they present in their response.

A growing number of candidates are providing well-structured, well-organised responses even to the most challenging questions. Many candidates developed their ideas, following a point through in greater depth for 'describe and explain' questions, rather than only providing a more generalised approach to their responses.

## 3PE0\_01\_Q02a

The question asked candidates to identify the muscles indicated on the diagram. Most candidates identified at least two of the muscles correctly. 'Biceps' was very well known. Where candidates did not achieve all three marks, this tended to be due to confusion between the hamstrings and the quadriceps, or through not using appropriate technical terms – for example, stating 'calf' rather than 'gastrocnemius'.

2 **Figure 1** shows the muscular system while running.



(Source: © Sebastian Kaulitzki/Shutterstock)

**Figure 1**

Complete **Table 1** by:

(a) Identifying the muscles labelled A, B and C in **Figure 1**.

(a) Muscle	
A	Bicep (1)
B	Hamstring (1)
C	Gastrocnemius (1)

Three marks were awarded. Each correct anatomical name is given for the muscles identified in Figure 1.

### 3PE0\_01\_Q02b

This question was more demanding of candidates than part 2(a) because having identified the muscle in 2(a), candidates had to state the role of the muscles shown in the figure.

In terms of errors, some candidates identified the correct role but then incorrectly went on to give the full range of movement possible at the joint. They included the movement caused by its antagonistic pair, e.g. the biceps allow flexion and extension at the elbow.

Other popular incorrect responses included statements without the correct terminology, e.g. the elbow bends. Some gave incomplete responses, not stating the joint at which the action occurred, e.g. the biceps cause flexion of the arm. This was not credited because flexion of the arm can occur at more than one joint.

Some candidates gave an example of the use of the muscle in physical activity, e.g. to lift a weight, misunderstanding the question.

Despite the potential for error, many candidates still achieved maximum marks for this question.

(b) Stating the role of each muscle.

	(a) Muscle	(b) Role of the muscle
A	Biceps (1)	Flexing the arm at the elbow (1)
B	Hamstrings (1)	<del>Extending</del> Flexing the leg at the knee (1)
C	Gastrocnemius (1)	plantar - flexion at the ankle (1)

Table 1

This response gained maximum marks. The correct role of each muscle is stated clearly, and all essential information is given:

- the joint action
- the name of the joint
- correct use of technical language (i.e. flexion rather than bending)

### 3PE0\_01\_Q03

This question asked candidates to analyse the movement occurring at the elbow and the hip during the leg shoot phase of the long jump. The analysis was based on a supplied image of a long-jumper.

Three marks were available for each joint. In each case, one mark was awarded for stating the joint action to achieve the position, one mark for the agonist causing the joint action and one mark for the antagonist that allowed the joint action to take place.

The full range of marks was accessed for this question. Whilst a few candidates did not attempt the question, most did. Some candidates only stated the action at the joints, some stated the action of the agonists and others referenced all required aspects correctly.

Of the two joints, the elbow was better known, with candidates often achieving maximum marks for this section of the question. Common incorrect responses did not use the correct terminology, for example referencing the triceps flexing (rather than contracting) or the arm straightening (rather than extending at the elbow). Some candidates gave contradictory responses, e.g. the triceps is the agonist as it is relaxing: this could not be credited.

However, many candidates did score well on this question, demonstrating a good knowledge of movement analysis at these two joints.

**Elbow**

The ~~agonist~~ ~~and~~ ~~bicep~~ ~~muscle~~. The agonist ~~tricep~~ muscles pull on the lower arms and the antagonist ~~bicep~~ muscle relaxes, thus causing extension of the arm at the elbow joint. (3)

**Hip**

The agonist muscle, the hip flexor contracts and pulls on the upper leg and the antagonist, gluteus maximus relaxes, causing flexion of the leg at the hip. (3)

This response gains the six available marks for this question. All required elements are included in the response:

- the joint action occurring at the named joint;
- the agonist during the movement;
- the antagonist during the movement

### 3PE0\_01\_Q04

The context for this question was a 3000m steeplechase. Candidates were given two images at two different points in the race, one during the running phase and one during the jumping phase.

This information was provided so that, regardless of a candidate's familiarity with this event, they could address the question.

Candidates were asked to examine how two different muscle fibre types would be used during the different parts of the race. The muscle fibre types were not given because this will have been the most accessible part of the question, i.e. to match running and jumping with the relevant fibre type.

For each fibre type, one mark was awarded for:

- linking the fibre type correctly to the relevant phase of the race
- examining the characteristic of the fibre type that made it most relevant
- the impact of the use of the fibre type.

Thus, a response that stated slow twitch during the running phase, as the fibre type is fatigue-resistant, so the runner can maintain running performance without fatigue, would gain three marks.

A recurring error was the linking of the fibre type with energy, e.g. type IIX being useful because they provided quick bursts of energy, rather than, for example, reference to the speed of force of contraction of the fibre type.

Many candidates accessed at least two marks for this question, linking the phases of the race correctly with the relevant muscle fibre type. Of the three aspects being assessed, the least well known appeared to be the applied knowledge of relevant characteristics of the muscle fibre types.

Candidates should be encouraged to reference the muscle fibre types as type I, type IIa or type IIX in line with the specification content.

(5)

When running 3000m, the athlete will need type I muscle fibres (slow twitch) as they do not fatigue easily, therefore allowing the runner to continue running at a fast pace without tiring to finish in a good position.

When jumping the hurdles, the athlete will depend on type IIX muscle fibres (very fast twitch) as they have a high speed and force of contraction, this allows the runner to have a quick run-up to the hurdle which allows them to get power to jump successfully over it & carry on running ~~effectively~~ effectively.

This is an excellent response and gains maximum marks. The candidate identifies when each fibre type is used in the race, why it is used and its impact.

### 3PE0\_01\_Q05a

This question asked candidates to explain why platelets were important to athletes such as boxers. Two marks were available, the first mark for identifying the role of platelets to clot the blood (or equivalent) and the second for applying this to sports such as boxing.

The image immediately above the question shows the boxer with blood from a cut to the face, which candidates could use to help them in their answer.

The majority of candidates achieved at least one mark for this question, identifying the role correctly. Responses that did not gain both marks tended to be because the response was not applied to the boxer, e.g. more theoretical knowledge was given about infection, rather than the importance in allowing the bout (or equivalent) to continue.

(a) Explain why platelets are important to athletes in contact sports such as boxing.

(2)

In boxing platelets are very important. For example, during a cut to the face platelets allow blood to clot. This prevents the bleeding and allows the boxer to continue.

The candidate identifies the role of platelets correctly and explains why this is important to the boxer, ie so they can continue with the fight.

### 3PE0\_01\_Q05b

This question asked candidates to state two functions of the plasma. To gain the marks, candidates needed to make reference to plasma's role as a transport system, in maintaining blood pressure or to regulate body temperature.

As a 'state' question there was no need for a description of the role or an explanation, but the role had to be clearly stated. For example, if a candidate stated that the function was to carry blood this was considered too vague. If no reference to the overarching function as a transport system was made then 'carried' could only be accepted if a specific named substance was given to compensate, e.g. 'carries red blood cells' would have been credited.

Whilst many candidates correctly identified a function of plasma the second example was often a repeat of the first therefore did not gain further credit, eg carries oxygen, carries red blood cells.



(2)

- 1 Plasma transports dissolved substances around the body, like nutrients to cells, to remove waste products like carbon dioxide.
- 2 Plasma is a transport medium for blood cells, like white blood cells to help the body fight against infection, and red blood cells, to carry oxygen.

One mark is awarded for identifying that plasma is a transport system.

### 3PE0\_01\_Q05c

This part of the question asked candidates to state the meaning of the term 'vasoconstriction'.

In their responses, it was important that candidates made reference to the narrowing of the lumen of the blood vessel. Simply saying the blood vessel became smaller or constricted was insufficient, because the whole vessel does not reduce in size.

Some candidates described the process of vasoconstriction or the reason for it, giving good descriptions, which unfortunately could not be credited, because this was not addressing the specific question being asked. This emphasises the need, especially under exam conditions, for candidates to take time to read questions carefully.

(c) To ensure blood flow to the working muscles, vasoconstriction occurs in some of the boxer's blood vessels.

State the meaning of the term vasoconstriction.

The lumen of the blood vessels<sup>(1)</sup> will constrict in inactive areas reducing blood flow to that area so more goes to active areas.

This response gains one mark for the correct meaning of the term 'vasoconstriction'. The specific type of blood vessel does not need naming.

### 3PE0\_01\_Q05d

Candidates were asked to explain why the boxer would include protein in her diet. Most candidates were able to provide a reason for eating protein, stating either for muscle growth or muscle repair or both. To gain the second mark candidates needed to apply their knowledge, proving a reason why muscle growth or muscle repair would be useful to the boxer. Most candidates gained at least one mark for this question.

(d) Explain why the boxer includes protein in her diet.

(2)

The boxer includes protein as this helps for muscle growth and repair allowing her to build up muscle to throw harder punches but also to repair damaged muscle and have during training or after fights.

This response gains both available marks. The role of protein for muscle growth and repair is stated and this point is then applied to the boxer, i.e. by increasing muscle they will be able to hit the opponent harder.

### 3PE0\_01\_Q05e

This question followed the same requirements as the previous part of the question. This time rather than protein candidates needed to explain why the boxer would drink water during a match.

(e) Explain why the boxer drinks water during the breaks in a boxing match.

(2)

The boxer drinks water during a boxing match so then they can keep hydrated so they don't call a bell because they lose water from sweating.

As with part (d) most candidates achieved at least one mark for this question, correctly identifying that water was required to prevent dehydration. Those that could apply this to the sporting context, i.e. they were at risk of dehydration due to sweating during the match, gained the second available mark.

### 3PE0\_01\_Q06a

This question assessed candidates' ability to use data. For this part of the question, candidates were given two pie charts and asked to analyse the data to identify the difference between the runner's inhaled and exhaled air.

One mark was awarded for each 'difference', i.e. that there was a greater percentage of oxygen inhaled than exhaled and that there was a greater percentage of carbon dioxide exhaled than inhaled.

It is important in this type of question that candidates do not simply repeat the values in the diagrams. They need to make it clear they are comparing the figures. This was designed as a very accessible data question.

(a) Analyse, using the data in **Figures 5 and 6**, the difference between the runner's inhaled and exhaled air.

(2)  
Overall, the runner inhales more oxygen than exhales oxygen, and exhales more CO<sub>2</sub> than inhales CO<sub>2</sub>.

This response gains both available marks. It is a very clear response indicating that oxygen inhaled is greater than exhaled yet carbon dioxide increases. Correct technical abbreviations are credited, i.e. CO<sub>2</sub> in place of carbon dioxide.

### 3PE0\_01\_Q06b

There were four marks available for this question. To gain maximum marks, candidates needed to explain the reasons for the differences in composition of inhaled and exhaled air.

Many candidates were able to access two marks, identifying that oxygen was reduced as it had been used but that carbon dioxide (CO<sub>2</sub>) increased because it was produced as a by-product. Those candidates that recognised carbon dioxide was a by-product of aerobic respiration, or that the oxygen was used for energy production, gained further credit.

(b) Explain why there is a difference in the amount of oxygen and carbon dioxide in inhaled and exhaled air whilst the long distance runner is training.

(4)  
The runner inhales a lot more oxygen than they exhale, as they need to take in more oxygen to respire more to produce more energy for more muscle contraction. However, the runner exhales more carbon dioxide as the runner needs to remove the carbon dioxide from their system as it is a waste product of aerobic respiration. The

This response gains four marks. One mark is given for explaining that oxygen is needed, and one mark for what it is needed for, i.e. to produce energy. Two marks are given for identifying that CO<sub>2</sub> levels increase because it is a waste product created during aerobic respiration.

### 3PE0\_01\_Q06ci

To address this question, candidates needed to identify the lung volume indicated on a graph. The y-axis on the graph was labelled 'Air exchanged per breath (dm<sup>3</sup>)'. From this information, or from recognition of similar graphs, candidates were expected to identify Tidal volume. The majority of candidates were able to recognise this lung volume.

Tidal volume

One mark is awarded for the correct identification of tidal volume.

### 3PE0\_01\_Q06cii

This was a four-mark question. Candidates were presented with two graphs. The first showed breathing whilst at rest, the second, during exercise. The candidates had to use the graphs, looking for differences between them, to explain why the stated graph represented the runner's breathing during exercise. Whilst many candidates achieved two marks for this question, identifying that during exercise breathing rate and depth increased, many were unable to link this to the features of the graphs.

#### Reason 1

The time taken between air being exchanged has decreased shown by the closer peaks of the curves. In Figure 7, at rest, ~~air~~ breathed roughly 5 times in 30 seconds whereas in figure 8, breathed roughly 7-8 times in 30 seconds. During exercise breathing rate increases, hence ~~it~~ must have

#### Reason 2

The ~~amount~~ volume of air exchanged in a single breath has also increased from 0.5 dm<sup>3</sup> breathed in in figure 7 to 2.0 dm<sup>3</sup> breathed in in figure 8. During exercise, cells require more

This response gains all four marks. In Reason 1, the candidate identifies an increase in breathing rate indicated on the graph by an increase in the number of breaths from 5 in Figure 7 to 7-8 in Figure 8. They also described that the peaks were closer together providing further evidence from the graphs that there was an increase in breathing rate. In Reason 2, the candidate identifies an increased depth of breathing and explains the feature on the graph that indicates this, i.e. the increase in air exchanged per breath increases from 0.5dm<sup>3</sup> to 2.0dm<sup>3</sup>.

### 3PE0\_01\_Q07a

Candidates were presented with two statements and told that the first statement, Statement A, represented aerobic energy release. Armed with this information, the candidates needed to justify why Statement A did, in fact, represent aerobic energy release.

Most candidates gained at least one mark for this question, correctly making the link between oxygen and aerobic energy production. Because two marks were available, to gain the second mark candidates also needed to make reference to the products of aerobic respiration, i.e. CO<sub>2</sub> and water or the product of anaerobic respiration, lactic acid, shown in Statement B.

Where candidates did not achieve both marks, this tended to be due to making reference only to oxygen, or by explaining the same point twice, e.g. statement A was aerobic due to the presence of oxygen, and B must be anaerobic because there was no oxygen in the statement.

Popular correct responses identified the use of oxygen and the absence of lactic acid.

(a) Justify why **Statement A** in **Table 2** shows aerobic energy release.

(2)

aerobic respiration requires oxygen, which is present in Statement A, also carbon dioxide and water are produced by aerobic respiration, which are also present in Statement A.

This response gains both available marks. One mark is given for identification that oxygen is present in Statement A and is needed in aerobic respiration. The second mark is given for identifying that carbon dioxide and water are produced during aerobic respiration.

## 3PE0\_01\_Q07b

This question asked candidates to explain two functions of the cardiovascular system that enable a long-distance cyclist to perform well in their event. The question was worth 6 marks, 3 marks being available for each stated function. To gain three marks for each function, candidates firstly needed to identify a function that would be relevant to the cyclist, e.g. oxygen transport. Then they needed to explain how the cyclist uses this function, e.g. so they could produce energy aerobically. Finally, candidates had to comment on the impact of this on performance, e.g. to delay fatigue.

Not all candidates were aware of the functions of the cardiovascular system, therefore found this question challenging. However, many did make reference to oxygen transport, possibly scoring two marks for this section of the response. In addition to the options in the mark scheme, another popular correct response was one of temperature regulation.

Marks were not awarded for a description of vasoconstriction or vasodilation unless linked to the correct function, i.e. increased oxygen delivery and associated points, or regulating body temperature and associated points.

(b) Explain **two** functions of the cardiovascular system that enable a long distance cyclist to perform well in their event.

(6)

Function 1

The cardiovascular system transports oxygen around the body, which is needed by the cyclist's muscles for aerobic respiration. Red blood cells pick up oxygen at the alveoli in the lungs and release it at the muscle cells, which give them oxygen which is used for ~~energy~~ aerobic respiration.

This enables the cyclist to perform well because aerobic respiration does not produce lactic acid (like anaerobic respiration does), allowing the cyclist to work for a long time without getting tired, which is important in a long distance event.

In this part of the response the candidate gains 3 marks. They correctly identify a function as oxygen transport, that this is needed to allow the cyclist to work aerobically and the impact of this being they will be able to cycle for longer without fatigue. Unfortunately, the second part of the response linked to blood clotting so no further credit was given.

#### Function 1

Firstly, the cardiovascular system performs vascular shunting. This means that blood <sup>and oxygen</sup> is primarily directed towards the muscles that need it for respiration. In this case, that would primarily be in the legs, for example the quadriceps. This means the legs muscles have as much energy as possible in order to provide optimum performance.

#### Function 2

Secondly, the cardiovascular system also performs vaso-dilation. This is ~~seen~~ where the blood vessels expand to form a wider lumen. This allows the blood to get closer to the skin, in order to cool the cyclist down when they inevitably get hot due to the exercise. Due to the lower temperature, the cyclist can perform optimally.

This response gains four marks. In both cases the 'missing' marks are for the impact on performance. 'To perform optimally' was considered too vague for credit, something a little more specific to show what this meant was required, e.g. delayed fatigue or to prevent the cyclist overheating and the impact this could have.

### 3PE0\_01\_Q08a

Question 8 focused on lever systems. In Q8 (a) candidates were told that a lever system is made up of four parts, one part being the lever. They were asked to state the other three parts. Most candidates were able to gain at least one mark for this question, making reference to the effort or load (or equivalent terms).

**8** Lever systems are made up of four parts. One of these parts is the lever.

(a) State the **other** three parts of a lever system.

1 effort

2 load

3 fulcrum

This response gained all three available marks for correct identification of the parts of a lever system.

### 3PE0\_01\_Q08b

This part of the question focused on mechanical disadvantage, asking candidates to explain the term for two marks. A one-mark question would have been phrased differently, for example 'Give one reason why third class lever systems work at a mechanical disadvantage'. Had this been the question, candidates would only need to state why there was a mechanical disadvantage, i.e. because the effort arm was shorter than the load arm (or equivalent). However, as an 'Explain' question the impact of the mechanical disadvantage was also required. Candidates needed to explain what the disadvantage would be. In this case, that more effort was required to move a load. A number of candidates scored a minimum of one mark for this question, normally for stating correctly that more effort was needed to move the load.

(b) Explain the term mechanical disadvantage.

(2)


~~mechanical~~ Mechanical disadvantage is when the load arm is longer than the effort arm so the load is harder to move and

This response gains both available marks. The candidate identifies why there is a mechanical disadvantage and then goes on to state the impact of this, i.e. that the load arm is longer than the effort arm therefore the load is harder to move.



### 3PE0\_01\_Q09a


This question focuses on movement analysis. In part (a) candidates are asked to identify the plane and axis during the front somersault. This was an accessible question because the movement used is stated directly in the component content for this qualification. Many candidates achieved both marks for this question. Popular incorrect responses switched the plane and axis, stating incorrectly the plane as the frontal plane and the axis as the sagittal axis. A few candidates gave alternative names for the planes and axes. Where these were correct known alternatives they were credited, but the terminology from this specification should be used in future examination series'.

	Movement pattern	Plane	Axis
(a)	 <p>Tucked somersault</p>	Sagittal	Frontal
		(1)	(1)

This response gains both available marks for stating correctly that the tucked somersault takes place in the sagittal plane about the frontal axis.

### 3PE0\_01\_Q09b

In part (b) of this movement analysis question, candidates were asked to identify the plane and axis during a full twist. As in part Q09 (a), this movement is given as an example in the specification with the intention of making this first question on movement analysis using planes and axes accessible to candidates. Of the two questions, (Q09(a) and Q09(b)), this example movement appeared to be slightly more challenging for candidates, although many did identify the vertical axis correctly.

(b)	 <p>Full twist</p>	Transverse plane	Vertical axis
		(1)	(1)

This response gains both available marks for correctly identifying the transverse plane and the vertical axis.

### 3PE0\_01\_Q10

This question asked candidates to explain how the factors of weight and muscle girth affect optimum weight. They were also asked to provide examples to support their answer. Therefore responses that did not include examples could not access maximum marks.

Most candidates scored some marks for this question by identifying that the taller you are the more you would weight or that the more muscular you are the greater your optimum weight would be. There were a good range of examples presented, e.g. for height jockey's and high jumpers or basketball players were often used. Boxers or rugby players were popular correct examples used for sports performers whose optimum weight would be higher due to increased muscle girth.

To gain maximum marks candidates needed to state how each factor affected optimum weight, then, provide a reason how this affected optimum weight and finally provide examples of sports performers who would have greater optimum weight due to height or muscle girth.

**10** Explain, using examples from sport, how height and muscle girth affect optimum weight.

**Height**

(3)

When you are tall like a high jumper you have longer bones which mean you weigh more.

**Muscle girth**

like a boxer

(3)

If you have bigger muscles, you are going to weigh more because muscle weighs more than fat.

This response gained 6 marks. It is a very succinct response but still contains all required elements to fully address the question. Examples of high jumper and boxer are given in the correct context, the impact of height and muscle girth on optimum weight is stated and a reason given to explain how this affects optimum weight.

### 3PE0\_01\_Q11

For this question candidates needed to explain why smoking would be a poor life style choice for an endurance athlete. Responses that focused on health reasons, e.g. lung cancer, were not credited as this information was given in the question. Therefore, to gain maximum marks candidates needed to think of another type of reason this would be a poor choice; candidates needed to think about the question context, an endurance athlete, and think about why smoking would be a disadvantage to them in particular. Candidates who made the link between smoking and reduced ability to transport oxygen and the impact this would have on an endurance athlete scored well on this question.

11 Explain **one** reason, other than poor health and well-being, why smoking is a negative lifestyle choice for endurance athletes.

(3)

Endurance events require ~~small~~ large volumes of oxygen to be carried in the blood to cells for aerobic respiration. Smoking produces carbon monoxide which binds better to haemoglobin in the blood and hence carbon monoxide is carried by red blood cells instead of oxygen. This means less oxygen can travel to body cells resulting in fatigue due to lactic acid production. ~~fatiga~~ Fatigue would ~~effect~~ negatively affect an endurance athlete's performance as they would be unable to compete at their best, hence it is a negative lifestyle choice. (Total for Question 11 = 3 marks)

This response gained the maximum 3 marks. The candidate explains that the endurance athlete requires large volumes of oxygen and that smoking restricts their ability to carry oxygen due to carbon monoxide. The impact of this on performance is also explained. This is a very well structured and full response.

## 3PE0\_01\_Q12

This question is an extended response question. Extended response questions use levels-based mark schemes. Levels based mark schemes are used to allow examiners to assess the quality of the response; how well the candidate's answer meets the question demands.

Each extended response question is designed to allow candidates to:

- demonstrate their knowledge of a topic (AO1)
- apply their knowledge to the question context (AO2)
- evaluate, based on the information they have already supplied (AO3)

This question is marked out of 9. The marks are allocated evenly for each assessment objective, AO1 knowledge; AO2 application of knowledge; and AO3 analysis and evaluation. This means that to achieve maximum marks the response must address all aspects of the question and demonstrate each of the assessment objective skills of knowledge, application and analysis/evaluation.

A different set of command words is used for the extended response questions, for example, 'evaluate' and 'discuss'. The exact requirements for these command words can be found in the glossary, but they are used to provide opportunity for candidates to look in depth at the question, so that they can meet each assessment objective (AO).

One AO is not weighted more than another. However, it is expected that before knowledge can be applied (AO2) it will be stated (AO1), and before a reasoned judgement (AO3) can be made there has to be some information on which to make the reasoned judgement.

Candidates should think about making a point and then developing it through the use of an applied example and then making a reasoned judgement. For example, Q12 asks candidates to evaluate, using the data provided, the impact of specific lifestyle choices on health and wellbeing.

A good way to approach this type of question, adopted by many candidates, would be to:

- take each lifestyle choice in turn, make a factual statement about the lifestyle choice, e.g. fat should represent 35% of the energy in our diet (AO1)
- link this to the data presented in the table, e.g. they are eating far too much fat (AO2)
- make a judgement about the impact of this lifestyle choice on this individual's health and well-being, e.g. increased risk of obesity (AO3)

Firstly, Jacob's diet has a negative impact. His diet is balanced wrongly, which makes it unhealthy. Fats should only take up 25% of your diet, with the greatest proportion being carbohydrates with 60%, with the remaining 15% as protein. Although fats are necessary for energy stores, too much fat will lead to excess stores of ~~grass~~ glycogen, i.e. leading to obesity. This obesity

This is an extract from a level 3 response. In this example extract the candidate takes a point and develops it fully. In this particular case there is a developed paragraph about the lifestyle choice in terms of diet. There is knowledge of recommended ratio of each macronutrient in the diet, this knowledge is used and applied to the information in the question, i.e. that there is too much fat in the diet and the impact of this on health and well being, i.e. increased risk of becoming obese.

Jacob's work and rest balance are very unhealthy. Healthy balance is an equal amount of rest and work and sleeping. Jacob at the moment is getting not enough sleep which could cause his work performance to lower as his body will be too tired.

This is an extract from a level 2 response. There is development within the extract, the information from the question is applied initially and then the knowledge point is given to support the application, i.e. we are told that they are not getting enough sleep (application) as we should have an equal amount of work, rest and sleep each day (i.e. 8 hours). The impact of lack of sleep/too much work however is too vague to complete the argument. The candidate could have expanded this, explaining that lack of sleep would cause irritability which could result in arguments with friends, or too much time working means no time for socialising reducing social interaction impacting on social health.

12 Jacob is 18 years old.

**Table 4** shows some of Jacob's lifestyle choices.

Diet	Activity level	Work/rest/sleep balance
Greatest proportion of diet is fat	Sedentary	15 hours spent working 4 hours spent resting 5 hours spent sleeping

**Table 4**

Evaluate, using the data in **Table 4**, the impact of Jacob's lifestyle choices on his health and well-being.

(9)

Lifestyle choices are important to maintain <sup>good</sup> health and well-being. Health is a state of complete emotional, physical and social well-being, not merely the lack of disease and infirmity. Bad lifestyle choices, including a bad diet and sedentary lifestyle, can poorly effect someone's health.

To have a balanced diet, you should eat ~~enough~~ the right foods in the right amount. This includes eating fruits + vegetables to eating a small amount of oil and spreads like butter. The greatest proportion of a diet should be fruits and vegetables followed by starchy carbohydrates. Fats should be consumed, but in a much smaller quantity. The data in table 4 ~~show~~ would show that Jacob's greatest proportion of his diet is fat. This will poorly impact his health and well-being. This is because he will not have enough energy to work for long periods of time effectively and well. The high levels of fat will also become an issue as the fat ~~will~~ can clog up arteries, which could lead to serious health risks like strokes and weight gain. This shows that his dietary choices are poor and ~~are~~ are negatively affecting his lifestyle and health.

The Table also would suggest that Jacob has a sedentary life style. A sedentary lifestyle is ~~not~~ a lifestyle where there is limited amount or no physical activity. Exercise and physical activity is important to daily life. In fact, the Government recommend that 5-18 year olds ~~to~~ participate in 1 hour of exercise/physical activity everyday. Jacob is 18 and so should follow these guidelines, however his sedentary life style will mean that this doesn't occur for Jacob. The impacts of a sedentary lifestyle can also poorly affect Jacob's health and well-being. Some effects of this lifestyle choice include an increased risk of diabetes type II, ~~extremely heart disease and~~ obesity and depression. ~~This~~ These effects can then decrease his physical, social and emotional health even more.

Judging by the table, Jacob's work/rest/sleep balance seems unbalanced. ~~He spends~~ The Government recommend that 5-18 year olds receive 8-10 hours of sleep a night. ~~This~~ Jacob is 18, so should again be following these suggestions. However, the table shows us that he is only receiving 5 hours of sleep a night - this is almost half of what he should be getting. He also spends 15 hours working, which immediately show that his ~~set~~ work, rest + sleep times are very unbalanced. A lack of sleep can cause irritability, tiredness and a lack of concentration. These effects will then cause him to not perform or work as well during the day, decreasing his general well-being as his emotional, ~~health~~

Social and physical will also deteriorate due to a lack of sleep and its effects.

In conclusion, Jacob's lifestyle choices are not appropriate for his age and his requirements (such as working 15 hours a day). This will have a poor impact on his health and well-being.

This is a level 3 response. The response begins with an introductory paragraph. This is not required however may be useful to help the candidate organise thoughts and plan the sections of their response.

The second paragraph explores what it means to have a balanced diet, using relevant knowledge to support the applied point that the individual in the question is consuming far too many fats and the impact of this.

The third paragraph considers the activity level of the individual, providing knowledge of government recommendations for activity levels to support the claim that the individual is not exercising enough and again the impacts of this lifestyle choice on health and well-being.

In the fourth paragraph the candidate demonstrates good knowledge and understanding of the work/rest/sleep balance. Knowledge of the government recommendations for hours of sleep are used as evidence to support the statement that the individual is not getting enough sleep, the effects or impact of this are then considered.

There is a very brief concluding paragraph to end the response, however, this is not a requirement.

This response was awarded maximum marks. The response demonstrates:

- knowledge of a range of lifestyle choices
- the ability to apply this knowledge to the data in the table
- the effect or impact of these lifestyle choices on the health and well-being of the individual