

We take care of the data, so you can get back to teaching.

## Paper 1: Extended 6-mark Questions and Answers

This is the teachers pack, where this resource includes: Questions, Responses and Commentary

Each question has been broken down so that can clearly see:

- How the question is structured
- What the grading criteria is
- How to structure the response in relation to the criteria
- What to look out for
- How to maximise the marks awarded when answering long answer questions

Top tips to support you when using this resource

- Share the breakdown of AOs and level descriptors with your students
- Use this resource as success criteria when dedicating time/lessons to extended questions and answers
- Italics indicate requirements for Level 3 from each AO
- If there is no attempt at evaluation, stay in Level 1
- We have used colour to create a visual for each AO
- The colours help learners to clearly see what areas of assessment have been addressed

Each response is colour coded in line with the Assessment Objectives (AO)

Each response has been colour coded so that both teachers and pupils can clearly see the structure of the answer and therefore why the response has achieved the number or marks awarded.

	Objective	Description
<b>AO1</b>	<b>Knowledge</b>	Demonstrate knowledge and understanding of the factors that underpin performance and involvement in physical activity and sport.
<b>AO2</b>	<b>Application</b>	Apply knowledge and understanding of the factors that underpin performance and involvement in physical activity and sport.
<b>AO3</b>	<b>Analysis &amp; Evaluation</b>	Analyse and evaluate the factors that underpin performance and involvement in physical activity and sport.

Q1. Evaluate how arteries and veins function to support performance in a marathon (6)

Level	Marks	Description
3	5-6	<b>Knowledge</b> of arteries and veins is <i>accurate and generally well detailed</i> . <b>Application</b> to performers in the <b>marathon</b> is <i>mostly appropriate, clear and effective</i> . <b>Evaluation</b> is thorough, reaching valid and well-reasoned <b>conclusions</b> as to the reasons for effective functioning of arteries and veins for a marathon runner to sustain performance. The answer is generally <b>clear, coherent and focused</b> , with appropriate <b>use of terminology throughout</b> .
2	3-4	<b>Knowledge</b> of arteries and veins is evident. There is some appropriate and effective <b>application</b> to performers in the <b>marathon</b> , although not always presented with clarity. Any <b>evaluation</b> is clear but links to the functions of the blood vessels are not always valid and well-reasoned. The answer lacks <b>coherence</b> in places, although <b>terminology</b> is used appropriately on occasions.
1	1-2	<b>Knowledge</b> of arteries and veins is limited. <b>Application</b> to performers in <b>Marathon</b> is either absent or inappropriate. <b>Evaluation</b> is poorly focused or absent, with few or no reasoned <b>conclusions</b> for the functions of the blood vessels to support effective performance. The answer as a whole lacks <b>clarity</b> and has inaccuracies. <b>Terminology</b> is either absent or inappropriately used.

### Response 1

Arteries and veins are blood vessels. They carry blood from and to the heart. This is important for a marathon runner as they will need more oxygen to be able to finish the race. Carbon dioxide will be carried in the deoxygenated blood in the veins which is sent back to the heart to get rid of through breathing. Veins contain valves which is good as there will be no backflow or pooling of blood which could be bad for a runner as they may feel dizzy.

The answer lacks clarity and the important factor here is there is no attempt at evaluation

**Marks awarded:** Level 1 = 1 mark

- Some knowledge i.e. valves, deoxygenated blood in veins but limited about arteries
- Attempt at application to a marathon but is vague
- Evaluation is absent, which means it could not move out of a level 1 descriptor.

**Strategies to improve** - See potential teacher comments/subjective feedback in blue font

Arteries and veins are blood vessels. How do they differ in size? They carry blood what type of blood from and to the heart. This is important for a marathon runner as they will need more oxygen for complete application why do they demand more oxygen? to be able to finish the race. What do arteries do in order to cater for the bigger demand for oxygen? Carbon dioxide will be carried in the deoxygenated blood in the veins which is sent back to the heart to get rid of through breathing. Veins contain valves which is good as there will be no backflow or pooling of blood which could be bad for a runner as they may feel dizzy. Why do they feel dizzy?

**Could the candidate follow this layering approach?**

K – Knowledge of arteries

A – How are they used during a marathon race

E – Why are there changes in arteries in order to keep the runner going

K – Knowledge of veins

A – How are they important in a marathon race

E – Why do they serve a vital role during a long marathon period.

## Response 2

Arteries have thick muscular walls. They carry blood away from the heart so that oxygenated blood can be received in muscles that a marathon would be using. For example, the muscles in the legs. Arteries are able to widen more towards the leg muscles which is good to increase oxygen delivery. Therefore, they get narrow to areas such as the gut. This is why you should not eat before exercise.

Veins have thinner walls and carry blood back to the heart. This blood will be deoxygenated and from leg muscles of a marathon runner will contain carbon dioxide which needs to be breathed out. Veins also have valves. This has an important role during the marathon as it makes sure blood only pumps in one direction towards the heart so that they are able to continue the race and not feel faint.

**Marks awarded:** Level 2 = 3 marks

- Knowledge is evident of both vessels
- Attempt at application to a marathon but is vague
- Evaluation is now included showing some attempt at why the functions of the vessels are important to the marathon runner.

## Response 3

Arteries are a large blood vessel with thick muscular walls. They carry oxygenated blood from the heart which will be required by a marathon runner as the muscles in their legs will have an increased demand for oxygen to keep going during the race. Blood runs through arteries at high pressure and will move quicker once the runner's heart rate increase. During the race, some arteries will dilate and widen to let more blood flow through. This is important in arteries leading to muscles in the leg so that more oxygen is available for gas exchange. However, to areas such as the stomach arteries will get smaller so less blood is available creating more blood to go to the muscles. This is known as blood redistribution and important for the marathon runner to maintain their performance.

In contrast, Veins carry deoxygenated blood back to the heart and are thinner with a large lumen. Blood tends to flow at a lower pressure but they do contain valves to prevent backflow. During a marathon, whilst more oxygen is being used, there will be an increase in carbon dioxide as this is a waste product of energy production. Marathon is an aerobic sport so will largely use oxygen for energy. The veins will therefore be vital in returning deoxygenated blood back to the heart and lungs for gas exchange so that carbon dioxide can be breathed out.

Both vessels will work closely together to increase oxygen uptake and get rid of carbon dioxide.

**Marks awarded:** Level 3 = 6 marks

- Knowledge is accurate about both arteries and veins
- For both vessels, the knowledge has been applied and is specific to a marathon runner
- Evaluation of the vessels is clear. The candidate is able to say why they function in order to sustain performance.

## Summary

This response is well structured. The candidate has scaffolded their answer through K, A and E twice, once for each vessel and attempted a conclusion statement at the end. Appropriate terminology is used throughout and there is attempt at synoptic reference – underlined above to show other areas of the specification that are relevant.

### Top tips when answering the questions

Use of connectives include;

- This is important ....
- However .....
- ... so that .....
- ... will therefore .....

**Q2.** Evaluate the long-term effects of exercise for a hockey player after a three-month interval training period (6)

Level	Marks	Description
3	5-6	<b>Knowledge</b> of long term exercise effects is <i>accurate and generally well detailed</i> . <b>Application</b> to a <b>hockey player</b> is <i>mostly appropriate, clear and effective</i> . <b>Evaluation</b> is thorough, reaching valid and well-reasoned <b>conclusions</b> as to the <i>benefits of the long-term effects of exercise on performance</i> . The answer is generally <b>clear, coherent and focused</b> , with appropriate <b>use of terminology</b> throughout.
2	3-4	<b>Knowledge</b> of long term exercise effects is evident. There is some appropriate and effective <b>application</b> to a <b>hockey player</b> , although not always presented with clarity. Any <b>evaluation</b> is clear but links to the benefits of the effects of exercise on performance are not always valid and well-reasoned. The answer lacks <b>coherence</b> in places, although <b>terminology</b> is used appropriately on occasions.
1	1-2	<b>Knowledge</b> of long term exercise effects is limited. Application to a <b>hockey performer</b> is either absent or inappropriate. <b>Evaluation</b> is poorly focused or absent, with few or no reasoned <b>conclusions</b> for the benefits of long term training on performance. The answer as a whole lacks <b>clarity</b> and has inaccuracies. <b>Terminology</b> is either absent or inappropriately used.

### Response 1

The hockey player will **get faster** but **also be able to last the game without feeling tired** as his **stamina will be better**. This will be because **the heart will get stronger** and **be better at pumping blood to the muscles**. They will be **stronger** in tackles This will all lead to better performances.

**Marks awarded:** Level 1 = 1 mark

- **Evaluation is absent, which means it could not move out of a level 1 descriptor.**
- **Application is attempted but largely absent**
- **Candidate has demonstrated an understanding of Hypertrophy, Improved stamina, speed and strength, all of which are listed in the specification however there is only 1 AO mark available for knowledge**

### Response 2

After a period of interval training the players **heart will get stronger**. This is known as **hypertrophy** and **also causes Bradycardia; a lower resting heart rate below 60bpm**. This will improve the players **stamina** which means in a game he will be able to **keep up with continuous play and track his player without the feeling the effects of tiredness, such as achy muscles**. In a game, **this is important because if a player becomes tired they might start to slow down and their marker could get free**.

The training may also lead to a **better muscular endurance in their legs**. This is ideal **for a hockey player as the legs muscles can keep going without getting tired**. Without endurance in their legs they could get cramp which may stop them altogether.

**Marks awarded:** Level 2 = 3 marks

- Knowledge is long term effects on exercise is evident and well detailed using accurate terminology
- For the effects identified it has been applied and is specific to a hockey game
- Evaluation is attempted to show a basic understanding of the benefits in a game/performance. There is only a small amount of evaluation therefore being awarded just 1 out of the 3 AO3 marks.

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## Response 3

**NB** - note the slight differences between response 2 and 3 to show the difference between level 2 and 3

After a period of interval training the players **heart will get stronger**. This is known as hypertrophy and also causes Bradycardia; a lower resting heart rate below 60bpm. This will improve the players stamina which means in a game he will be able to keep up with continuous play and track his player without the feeling the effects of tiredness, such as **achy muscles**. In a game, this is important because if a player becomes tired they might start to slow down and their marker could get free and score a goal or they may not be able to keep up with play and not be available for a pass to keep possession for the team. Improved stamina should stop these things from happening and actually make it hard for the defender to keep up with them for the full game.

The training may also lead to a **better muscular endurance in their legs which is the ability of the muscles to repeatedly contract without fatigue** and **strength in their arms**. This is ideal **for a hockey player as the legs muscles can keep going without getting tired and the strength in their arms could make passes and tackles more powerful**. Without strength in the upper body passes could be weak and easily intercepted.

**Marks awarded:** Level 3 = 5 marks

- Knowledge is long term effects on exercise is evident and well detailed using accurate terminology
- Good use of fitness component definition to show a synoptic approach
- For the effects identified it has been applied and is specific to a hockey game
- Evaluation is clear in the first paragraph and the candidate has written clearly about the benefits in a game/performance. There is only a small evaluation in the 2<sup>nd</sup> paragraph therefore being awarded just 2 out of the 3 AO3 marks.

## Summary

This response is well structured. The candidate has scaffolded through K, A and then E twice. A conclusive statement may have supported the answer to access that final AO3 mark.

Q3. Evaluate the factors a rugby player has to consider in order to **prevent injury (6)**

Level	Marks	Description
3	5-6	<b>Knowledge</b> of considerations to prevent injury are <i>accurate and generally well detailed</i> . <b>Application</b> to performers in the <b>rugby</b> is <i>mostly appropriate, clear and effective</i> . <b>Evaluation</b> is thorough, reaching valid and well-reasoned <b>conclusions</b> as to the reasons for preventing injury to sustain performance. The answer is generally <b>clear, coherent and focused</b> , with appropriate <b>use of terminology throughout</b> .
2	3-4	<b>Knowledge</b> of consideration to prevent injury is evident. There is some appropriate and effective <b>application</b> to a <b>rugby performer</b> , although not always presented with clarity. Any <b>evaluation</b> is clear but links to the why the considerations are in place to prevent injury are not always valid. The answer lacks <b>coherence</b> in places, although <b>terminology</b> is used appropriately on occasions.
1	1-2	<b>Knowledge</b> of considerations to prevent injury is limited. <b>Application to a rugby performer</b> is either absent or inappropriate. <b>Evaluation</b> is poorly focused or absent, with few or no reasoned <b>conclusions</b> for the why the factors prevent injury. The answer as a whole lacks <b>clarity</b> and has inaccuracies. <b>Terminology</b> is either absent or inappropriately used.

### Response 1

A rugby player could complete a **warm up and down**. He could also **wear correct studs to prevent an ankle injury**. Learning the correct **tackle and scrum technique** could help prevent neck injuries.

**Marks awarded:** Level 1 = 1 mark

- Candidate has listed potential factors to prevent injury. Knowledge of each is limited but as a few from the specification are included the 1 x AO1 mark has been awarded.

### Response 2

The main factor a rugby player should consider in order to prevent injury is to **warm up and stretch** effectively before training and a game. A player would take part in a **3 stage warm up** where they may do a **pulse raiser** such as **light jogging, high knees** followed by some dynamic stretching and some **skill familiarisation** such as a **passing drill or using the tackle bags**. This is important because the increase of oxygenated blood from the pulse raiser ensures the temperature of the muscles are increased so they are less likely to tear. Likewise, the ligaments and tendons become more elastic from the stretching which can ensure the sudden **movement that occurs in Rugby** does not cause a soft tissue injury such as strain or sprain. **Dynamic stretching** such as **lunges**, will also mobilise the joints in key areas such as **the shoulders and hips** which is important for **tackling technique** as this will prevent potential



dislocations from a contact sport. If a warm up is not conducted properly a player is at a higher risk of injury which could impact on playing but also on everyday lifestyle.

**Marks awarded:** Level 2 = 4 marks

- Candidate has demonstrated a well detailed understanding of a warm up in order to prevent injury. They have referred to their understanding from 3.1.3.5 of the specification. No other factors have been identified – AO1 = 1
- There is some effective application of a warm up to a Rugby player AO2 = 1
- Evaluation is valid as to why a warm up would be beneficial in preventing injuries. The candidate is clear on the impact a warm up routine. Another factor would need evaluating in order to access level 3. AO3 = 2

**Potential 2<sup>nd</sup> paragraph to take response 2 into level 3**

In addition to a warm up, a player also needs to consider the **appropriate clothing and equipment required**. For example, all players have to wear **studded boots** to provide the contact with the ground especially during contact situations and prevent injuries to the ankle and lower leg from slipping/falling. They may also opt for a **mouth guard and padded head gear** for protection of the teeth, jaw and skull when being tackled. Using the correct equipment means bones are protected from possible fractures around the cranium. This can have negative effects on life. However, equipment can be expensive to buy and may not always be worn in training which could lead to injury.

- Another factor included – clothing and equipment
- Specific to requirements in Rugby
- Benefits made clear and a 'however' used which is good evaluative language as the candidate considers a conclusion to be able to access specialized equipment.

## Teacher tip for the delivery of this question

### Concern

My students are not familiar with rugby?

### Solution

Re word the question to include a sport they feel confident in writing about. Emphasise the need to be specific to that sport to access AO2 marks.

### **AND/OR**

Re write the question:

**Using a named sport of your choice, evaluate the factors a performer has to consider in order to prevent injury (6)**



**Q4.** Evaluate why a triathlete will decide to undertake **altitude training** to improve their performance **(6)**

Level	Marks	Description
3	5-6	<b>Knowledge</b> of altitude training is <i>accurate and generally well detailed</i> . <b>Application</b> to the <b>triathlon</b> is <i>mostly appropriate, clear and effective</i> . <b>Evaluation</b> is thorough, reaching valid and well-reasoned <b>conclusions</b> as to <i>benefits and limitations of altitude training to improve performance</i> . The answer is generally <b>clear, coherent and focused</b> , with appropriate <b>use of terminology throughout</b> .
2	3-4	<b>Knowledge</b> of altitude training is evident. There is some appropriate and effective <b>application</b> to a <b>triathlete</b> , although not always presented with clarity. Any <b>evaluation</b> is clear but links to the benefits and limitations of altitude training are not always valid. The answer lacks <b>coherence</b> in places, although <b>terminology</b> is used appropriately on occasions.
1	1-2	<b>Knowledge</b> of altitude training is limited. <b>Application</b> to the <b>triathlon</b> is either absent or inappropriate. <b>Evaluation</b> is poorly focused or absent, with few or no reasoned <b>conclusions</b> for the benefits and limitations to performance. The answer as a whole lacks <b>clarity</b> and has <b>inaccuracies</b> . <b>Terminology</b> is either absent or inappropriately used.

### Response 1

(NB Note how it differs from response 2 to move back into level 1)

At altitude, more red blood cells occur as the atmosphere has less oxygen. When back from altitude the increase in red blood cells means more oxygen is able to get around the body. This is good for a triathlon as the event is an endurance event which lasts 2 hours and they need to keep going all this time.

**Marks awarded:** Level 1 = 1 mark

- Some knowledge of altitude training with some appropriate use of terms
- Attempt at application to the triathlon
- Evaluation is not attempted therefore can only be level 1.

### Response 2

It is good to go to train at high altitude as it improves aerobic respiration. This is because more red blood cells occur as the atmosphere has less oxygen in it when at altitude. When back from altitude the increase in red blood cells means more oxygen is able to get around the body. This is good for a triathlon as the event is an endurance event which lasts 2 hours and they need to keep going all this time. However, when at altitude you can get sick and it is really expensive to get there.

**Marks awarded:** Level 2 = 3 marks

- Some knowledge of altitude training with some appropriate use of terms
  - Attempt at application to the triathlon
  - Evaluation is attempted in that candidate has considered limitations of altitude training
- 

## Response 3

A triathlete would train at high altitude and there is less oxygen in the atmosphere. They would probably do this for a period of 2 weeks and when they first train their oxygen carrying capacity is reduced. The body adapts by developing more red blood cells. On return to sea level they have even more red blood cells, all now with full oxygen carry capacity. Their aerobic respiration therefore gets much better. This would be very useful for a triathlete as their event covers a swim, bike and run for over 2 hours. It is largely an aerobic sport as the intensity is moderate and is happens over an extended period of time. They need to train their cardio vascular system so it can keep going without getting tired in order to get the best time and position in the race. The benefits of altitude are that aerobic performance can increase significantly so training at high altitude just before a competition is really good physical preparation. However, whilst at altitude the triathlete may be at risk of nose bleeds or altitude sickness which could affect their full training regime. Other fitness components such as speed may be neglected as you are not able to train at the same intensity than when at sea level. There are many different alternatives to altitude training such as oxygen tents and masks which are less expensive than having to travel to areas of high altitude. In conclusion, altitude training does have physical benefits but there are potential problems too.

**Marks awarded:** Level 3 = 6 marks

- Knowledge of altitude is well detailed
- There is clear application to the triathlon making clear links to it as an aerobic sport.
- Evaluation is very well detailed. The candidate has included both benefits and limitations and finished with a conclusive statement.

This response is well structured. The candidate has scaffold through K, A and E Appropriate terminology is used throughout.