



Model Answers

AQA GCSE PE – Paper 1

(Revision session on Tuesday 3rd May 2022, 4.00–5.30pm)

This document contains:

- Model answers for the Practice Questions answered during the 2022 Revision series
- Questions in AEI order
- Where possible, examples of extended writing
- No one-mark or multiple-choice questions

How should schools use these papers?

This paper has been constructed specifically for use in preparation for and during the live revision shows provided by James Simms in May 2022. I encourage students to attempt the questions in advance of the revision shows.

Please, use these model answers in combination with the mark scheme and the revision session, available in the [AQA GCSE PE Revision page](https://pages.theeverlearner.com/2022-aqa-gcse-pe-revision) (<https://pages.theeverlearner.com/2022-aqa-gcse-pe-revision>).

All questions are taken from ExamSimulator. Please note, there are hundreds of additional questions on ExamSimulator covering the AEI topics. ExamSimulator is a premium resource available via [TheEverLearner.com](https://www.theeverlearner.com).

I hope this helps both students and teachers in their exam preparations.

James Simms

1. Explain how the skeletal and muscular systems work together to cause movement.

Muscles work ¹ antagonistically in pairs. This is achieved by an ² agonist muscle pulling on a bone via a tendon whilst an antagonist muscle relaxes to ³ allow the movement to occur. Bones move when this force is applied ⁴ and long bones act as levers for muscles to pull against.

No comments provided.

Marks:[3/3]

2. State **two** structural features of capillaries.

<p>Capillaries have a ¹very small lumen, the exact diameter of a red blood cell and are ²one cell thick.</p>	<p>No comments provided.</p>
	<p>Marks:[2/2]</p>

3. State **two** functional features of capillaries.

Capillaries are the ¹ site of gaseous exchange which occurs via ³ diffusion of gases. There are millions of individual capillaries at a tissue such as the alveoli and this allows for a very large surface area for diffusion.

No comments provided.

Marks:[2/2]

4. Explain how **vasoconstriction** causes blood redistribution during exercise.

<p>During vasoconstriction, the ¹ lumen of an artery narrows and this increases resistance to blood flow leading to other organs such as the stomach. As a result, the ² proportion of cardiac output reaching the stomach, say, decreases.</p>	<p>No comments provided.</p>
	<p>Marks:[2/2]</p>

5.

Using your knowledge of mechanics of breathing, explain how air leaves the lung during **expiration** at rest.

1
The **diaphragm relaxes** and returns to its dome shape. Likewise,
2
the **intercostal muscles relax** and this causes the **rib cage to**
3
4
move downward and inward. As a result, there is a **decreased**
5
volume in the thorax which **increases air pressure in the** lungs
and air rushes out.

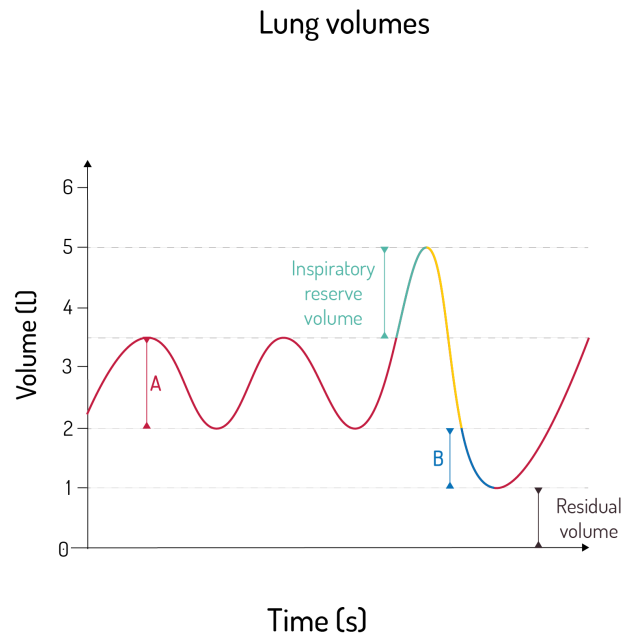
No comments
provided.

Marks:[4/4]

6. Explain how **inhalation** changes during exercise .

<p>1 The chest cavity increases in size even further by an increased depth of breathing compared to rest. This occurs due to the contraction 3 of the pectorals and sternocleidomastoid in addition to the diaphragm and intercostal muscles which are the only 2 ones to contract at rest. Furthermore, breathing rate increases so there are more breaths per minute compared to at rest.</p>	<p>No comments provided.</p>
	<p>Marks:[2/2]</p>

7. The image shows a spirometer trace. Identify the lung volumes labelled **A** and **B**.



1

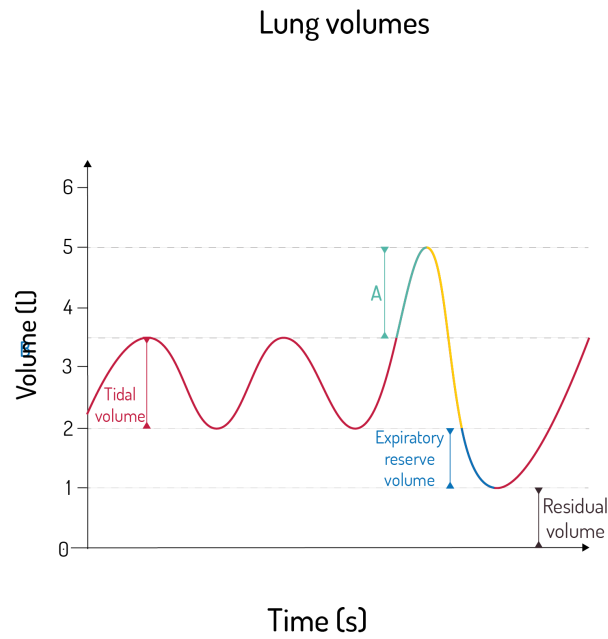
2

A is tidal volume. B is expiratory reserve volume.

No comments provided.

Marks:[2/2]

8. Explain the effect of exercise on lung volume **A**.



1
A is the inspiratory reserve volume and this decreases during
2
exercise due to an increased tidal volume.

No comments provided.

Marks:[2/2]

9. Using a sporting example, explain how **aerobic** respiration contributes to a performance.

Aerobic energy release takes place for the ¹ whole duration of a 70 - minute hockey match. This is because aerobic energy is released slowly and ² at moderate intensity. ³ Examples in hockey would be a midfielder jogging back into position or when a team is setting up to defend a short corner (rather than the defending of the short corner itself).

③ Nice points but we needed reference to long duration for the third mark. :(

Marks:[2/3]

10. Evaluate the role of anaerobic respiration in golf.



Swinging the club during a ¹ drive from a par - 5 tee shot is ² anaerobic because it is explosive. This shot is also short duration and lasts only 1 - 2 seconds. However, anaerobic systems are ³ not needed to power finer shots such as short putting ³ as it is not explosive or even walking between shots which is longer duration and low intensity so relies on aerobic energy release.

③ Lovely answer but mark awarded already.

Marks:[3/3]

11. Identify **three** long-term effects of exercise on the cardiac system.

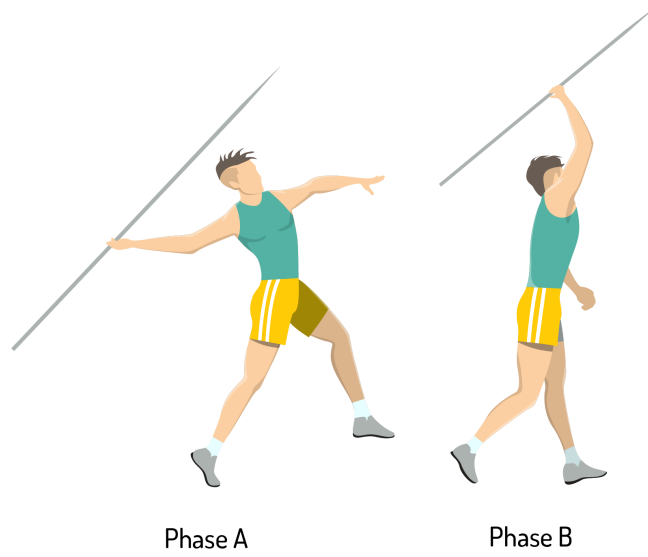
<p>1 Cardiac hypertrophy. 2 Resting heart rate below 60bpm, known as 3 bradycardia and an improved overall CV endurance.</p>	<p>No comments provided.</p>
	<p>Marks:[3/3]</p>

12. Name the group of muscles which stabilise the shoulder during movement.

1 Rotator cuff.	No comments provided.
	Marks:[1/1]

13.

Identify the type of movement at the **shoulder** of the throwing arm in phase B of the javelin throw.



¹
The shoulder is **flexing**.

No comments
provided.

Marks:[1/1]

14. Identify the type of movement at the **knee** of the **recovery leg** during running.



¹
The knee is **extended**.

No comments
provided.

Marks:**[1/1]**

15. Identify the **main agonist at the hip of the drive leg during running.**



1
Hip flexors.

**No comments
provided.**

Marks:[1/1]

16. Explain how rock climbers use balance in their performances.



Rock climbers need to keep a ¹ **wide base of support** and they do this by having their feet on different parts of the rock face. The climber also keeps their ³ **centre of mass vertically above this wide base** by not leaning too far to either side. Finally, the climber can ² **keep centre of mass close to the wall** and should avoid leaning back to maintain balance.

No comments provided.

Marks:[2/2]

17. Justify the importance of coordination in tennis.



The player needs to ¹ coordinate the movements of the arms, legs and hands to strike a first serve cleanly and with power. They must be able to ² run forward at pace whilst looping their racket back with their arm when trying to successfully reach a drop shot and stay in the point. They must be able to ³ coordinate their steps and arm action to get underneath a lob shot in order to be in the right position to smash the ball from overhead and win the point.

No comments provided.

Marks:[3/3]

18. Evaluate the importance of speed **and** flexibility for a gymnast.



1 Speed is the maximum rate at which an individual is able to perform a movement or cover a distance in a period of time.

2 Flexibility is the range of movement at a joint and different joints have different ranges. Gymnasts need speed at the start of a tumble routine on the floor apparatus as they need to build momentum to make more rotations in the air. Also, more speed means a greater height when performing a vault so the gymnast has more time to perform aerial moves like somersaults and twists before landing. They need flexibility to do moves like the splits or back bends or pike jumps. The more flexible a gymnast is, the higher the points they are likely to score but it is also the case that they are less likely to get injured. Flexibility even helps a gymnast perform harder moves more easily and these moves become beautiful to look at or are referred to as aesthetic. The moves are more efficient. Both speed and flexibility are important to the gymnast but I believe that flexibility is more important than speed because it is fundamental to every move in

No comments provided.

18. Evaluate the importance of speed **and** flexibility for a gymnast.

gymnastics not just some. However, speed remains important especially for gaining more height in jumps or vaults. It should also be remembered that ¹⁵ other components such as agility and muscular endurance are critical for a gymnast.

Marks:[6/6]

19.

Fitness tests are used to find out strengths and weaknesses and to monitor improvements. Identify **three** other reasons for including fitness testing within a training programme.

<p>1 To establish a baseline prior to a programme. To compare scores 3 to normative data. To motivate athletes towards a specific and measurable goal.</p>	<p>No comments provided.</p>
	<p>Marks:[3/3]</p>

20.

Many fitness tests are too general and do not replicate sporting movements. Identify **three** other limitations of fitness testing.

Fitness tests are often done in a ¹ **non - competitive environment** so are not the same as competing under pressure. Some tests are only ² **predictive and are not a direct measure** of fitness. Finally, some tests have ⁴ **complex protocols** and this can easily result in errors.

No comments provided.

Marks:[3/3]

21. Explain why a roller-hockey player would complete a cool-down after a match.

The roller - hockey player would ¹ recover faster and can then ² compete or ³ train again sooner. ⁴ Lactic acid is removed and this ⁵ can cause less discomfort after a match. Cool downs ⁶ prevent DOMS and this means the performer is less likely to feel soreness in the days after the match.

No comments provided.

Marks:[4/4]

22.

Devine is a hockey goalkeeper and is playing a cup final in 60 minutes' time. Analyse the benefits of a well structured warm up to Devine's overall cup final performance.



A well - structured warm up would have four components which are pulse raising, stretching, skill - based practices and mental preparation. For the pulse raiser, Devine could jog around the perimeter of the D and this would help with oxygen delivery to the muscles of the legs throughout the match. Furthermore, muscle temperature would rise and decrease the chance of soft tissue injury as well as making the muscle more pliable. Devine must stretch to increase the range of movement at joints such as the hips to make split saves. By being flexible, Devine is less likely to suffer shoulder dislocation when she lands from a diving save. Devine is likely to use both static stretches, especially for the legs but also dynamic stretches to loosen the whole body. For skill - based practice, Devine could take part in shot stopping or distribution drills with her feet. This increases the coordination of antagonistic pairs making her technique better in the match. Finally, Devine will take part in mental preparation such as using deep breathing to control arousal or visualisation of her performance during alone time in the warm up. This will mean that she is able to reach optimal arousal level which, for Devine, is likely to be low arousal according to the inverted U theory. Interestingly though, Devine must be able to hype herself up when running out to a forward or making a powerful save. Gross skills require higher arousal levels in the main. If Devine is psychologically prepared she is likely to make good decisions in the game via her information processing which requires her to perceive stimuli as inputs, make decisions on those inputs and then implement the correct output movement such as making a diving save. With all of these stages, Devine will have taken her

No comments provided.

22.

Devine is a hockey goalkeeper and is playing a cup final in 60 minutes' time. Analyse the benefits of a well structured warm up to Devine's overall cup final performance.

28

performance up to match intensity and her essential skills through the full range of movement. In conclusion, Devine must use the warm up to build intensity. Whilst a majority of goalkeeping in hockey is aerobic, there are multiple moments when explosive anaerobic work needs to be done. Anaerobic energy release is when glucose is converted into lactic acid with a release of energy in the absence of oxygen. The warm up must include these anaerobic moments as well as the gentle, gradual aerobic work.

23

Marks:[9/9]

Feedback:

No feedback provided.