



Mark Scheme

OCR GCSE PE – Paper 1

This mark scheme contains:

- Copy of each question for reference
- Marking guidance where appropriate
- Marking points containing alternative acceptable responses plus relevant assessment objective

How should schools use this mark scheme?

The mark scheme has been constructed specifically for the exam paper used in preparation for and during the live revision shows provided by James Simms in May 2022.

All questions/mark schemes are taken from ExamSimulator. Please note, there are hundreds of additional questions on ExamSimulator covering the AEI topics. Within the platform, the teacher is assisted with the marking and full diagnostic feedback is also provided. ExamSimulator is a premium resource available via TheEverLearner.com.

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

James Simms

1. Define the term '**mechanical advantage**'.

Marking guidance

Define mechanical advantage.

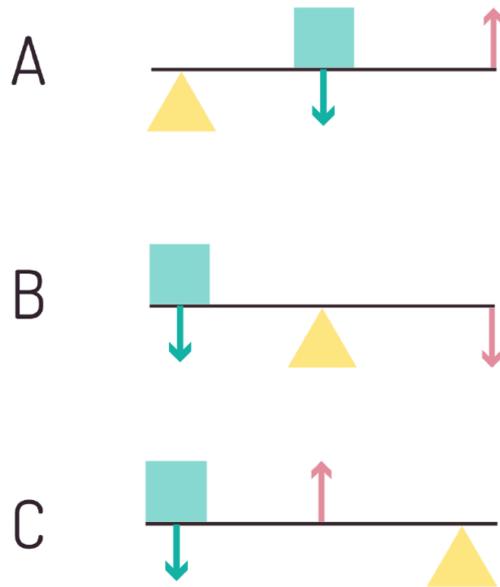
Marking points

(1) [AO 1] Overcome a large load with little effort/Overcome a large resistance with little effort/Large load little effort

(2) [AO 1] Longer effort arm/Shorter load arm/Shorter resistance arm

2.

The diagram shows the three classes of lever.
Identify which lever system is shown in A, B and C.



Marking guidance

Not provided

Marking points

- (1) [AO 1] A is 2nd/A is second class/A is class two
- (2) [AO 1] B is 1st class/B is class one/B is first
- (3) [AO 1] C is 3rd class/C is class three/C is third

3.

Lever systems play a fundamental role in providing movement. **Describe** the characteristics of lever systems.

Marking guidance

Do not award "lever" along for the final marking point. The student must write lever arm or rigid bar or equivalent.

Marking points

- (1) [AO 1] Levers have an effort/Muscle contraction/Muscle insertion
- (2) [AO 1] Levers have a load/Resistance/Weight
- (3) [AO 1] Levers have a fulcrum/Pivot/Joint
- (4) [AO 1] Levers have a rigid bar/Lever arm/Long bone

4. Explain why flexion at the elbow during a bicep curl uses a third class lever.



Marking guidance

Sub max two if the component in the middle of the lever system is not identified correctly.

Accept resistance for load.

Do not accept force for effort.

No credit for 1, 2, 3 is FLE.

Marking points

(1) [AO 2] FEL/LEF/Fulcrum effort load

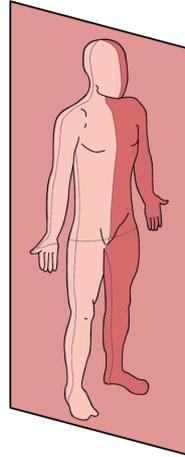
(2) [AO 2] Fulcrum is the elbow joint/Elbow joint is the pivot/The lever pivots on the elbow

(3) [AO 2] Load is the weight of the forearm/Load is the weight/Load is the dumbbell

(4) [AO 2] Effort is the biceps/Effort applied via the biceps tendon/Biceps inserts onto the radius

5. Using a sporting example, identify a joint movement that occurs along the plane in the image.

Sagittal Plane



Marking guidance

Credit suitable examples of movements along the sagittal plane.
Accept any movement from a named sport and skill that involves flexion or extension.

Marking points

- (1) [AO 1] Flexion/Extension/Flexion and extension
- (2) [AO 2] Somersault/Kicking/Tuck jump

6. Using a practical example, describe movement around the **longitudinal axis** of rotation.

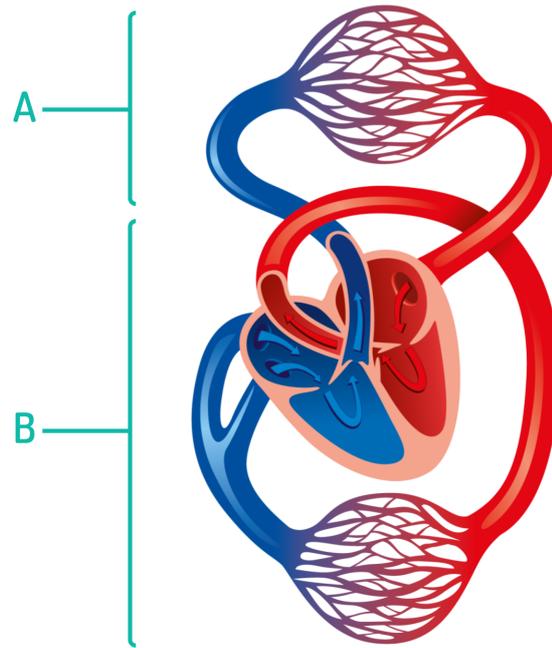
Marking guidance

Accept any named movement in transverse plane/doing rotation.
The answer must mention the skill and the sport to get the mark. For example, "pivoting" is too vague but "pivoting in basketball" can be marked correct.

Marking points

- (1) [AO 1] Top to bottom of the body/Bottom to top/Head to toe
- (2) [AO 1] Rotation of the body/Rotation/Movement along the transverse plane
- (3) [AO 2] Full twist in trampolining/Pivoting in netball/Spinning in the throwing circle of a discus throw

7. The picture shows the double circulatory system. Identify the loops labelled A and B.



*For representation purposes only. Not anatomically accurate.

Marking guidance

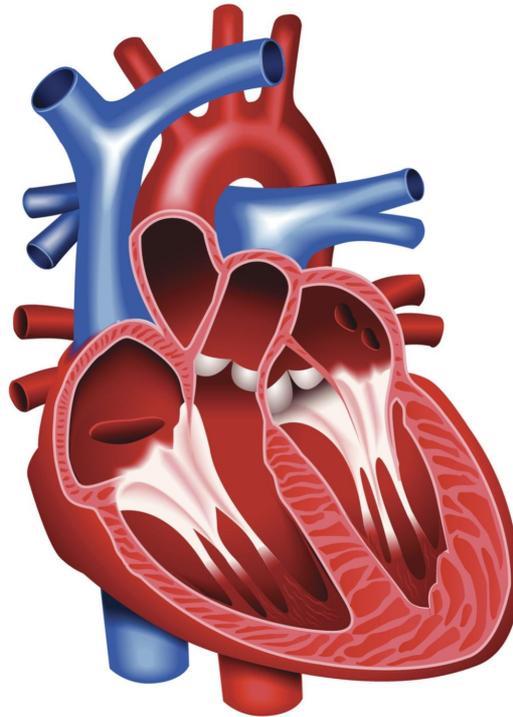
Must have the correct letter linked with the correct circuit.
Do not accept A is systemic or B is pulmonary.

Marking points

- (1) [AO 1] A is the pulmonary circulation/A is pulmonary/A pulmonary circuit
- (2) [AO 1] B is the systemic circulation/B is systemic/B systemic circuit

8.

The heart contains four valves.
Analyse the roles of the different valves in the heart.



Marking guidance

If no valves are named, max score is 1 mark.
Stops blood travelling backwards = BOD.
Keeps blood flowing in correct direction = BOD.
Prevents backflow on its own = TV.
Blood flow in one direction = TV

Marking points

(1) [AO 1] Valves prevent backflow of blood/Prevent the backflow of blood/Prevent blood flowing backwards

(2) [AO 1] Bicuspid valve/Mitral valve/Bicuspid

(3) [AO 3] Prevents blood in the left ventricle from re-entering the left atrium/Flowing back into the left atrium/Regurgitating back into the left atrium

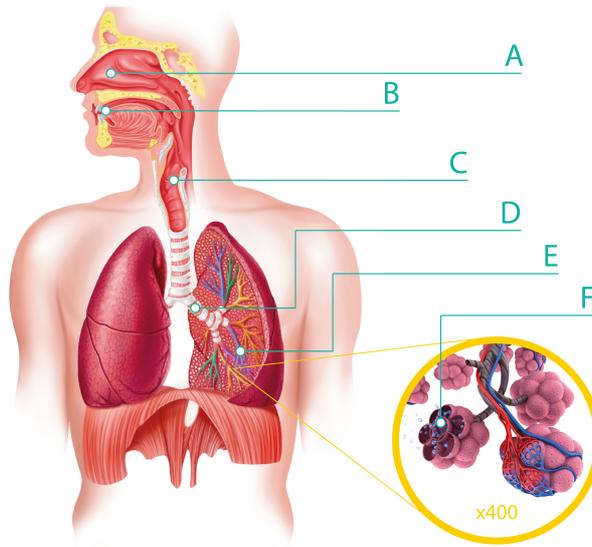
(4) [AO 1] Tricuspid valve/Tricuspid/Right atrioventricular valve

(5) [AO 3] Prevents blood in the right ventricle from re-entering the right atrium/Flowing back into right atrium/Regurgitating into right atrium

(6) [AO 1] Semilunar valve/Aortic valve/Pulmonary valve

(7) [AO 3] Prevents blood in the arteries from re-entering the heart/Flowing back into ventricles/Regurgitating into ventricles

9. Identify the components of the respiratory system labelled **C** and **E**.



Marking guidance

Only accept answers if linked to the correct label. For example, do not accept "C is bronchiole".

Accept phonetic spellings of trachea and bronchiole.

Do not accept bronchus instead of bronchiole.

Do not accept windpipe for trachea.

Marking points

(1) [AO 1] C is the trachea/C is trachea/C trachea

(2) [AO 1] E is a bronchiole/E are bronchioles/E bronchiole

10. Describe the role of the diaphragm during inspiration.

Marking guidance

Do not accept: 'More space in the lungs' or 'decrease in pressure' on its own. Too vague.

Marking points

(1) [AO 1] Diaphragm contracts/Diaphragm flattens/Diaphragm pushed down

(2) [AO 1] Rib cage moves up and out/Rib cage out/Rib cage up

11. Describe **three** features of the alveoli that make them suitable for gaseous exchange.

Marking guidance

Mark the first three descriptions only.

Even if correct descriptions are offered later in the answer, only the first three are marked.

'Good blood supply' is too vague for the first mark scheme point.

Descriptions must be linked to gaseous exchange.

Marking points

(1) [AO 1] Capillary beds/Surrounded by capillaries/Capillarisation

(2) [AO 1] Single cell/One cell/One cell thick

(3) [AO 1] Increased surface area of alveoli to allow more diffusion/Greater surface area for diffusion/Large surface area to allow movement of gases

(4) [AO 1] Moist lining allows for easier diffusion/Moist lining allows for easier movement of gasses across the alveoli walls/Moist lining

(5) [AO 1] Higher concentration of oxygen/Higher concentration of O₂/Lower concentration of carbon dioxide

12.

The image shows athletes running a marathon.

Explain how an increased quantity of oxygen is supplied to the muscles **during** long distance running events.



Marking guidance

Explanation of blood flow must be linked to the correct term (vasoconstriction or vasodilation).

Do not accept long-term effects of exercise (e.g. capillarisation).

Marking points

- (1) [AO 2] Vasodilation of blood vessels to the working muscles/Vasodilation of blood vessels to the gastrocnemius/Vasodilation of blood vessels to the quadriceps
- (2) [AO 2] Vasoconstriction of blood vessels to other organs/Vasoconstriction of blood vessels to liver/Vasoconstriction of blood vessels to the kidney
- (3) [AO 2] Increase the number of breaths per minute/Increased inspirations per minute/Increased breaths per minute
- (4) [AO 2] Increased tidal volume/Increased amount of air which enters the lungs during normal inhalation/Increased volume inspired in one breath
- (5) [AO 2] Minute ventilation increases/Increased minute ventilation/VE increases
- (6) [AO 2] Increased heart rate/Heart rate increases/HR increases
- (7) [AO 2] Increased stroke volume/Stroke volume increases/Increased SV
- (8) [AO 2] Increase in cardiac output/Increase in Q/More blood per minute

13.

Weight training for a rugby player will help to cause long-term adaptations in the musculoskeletal system.
State **two** musculoskeletal adaptations that a rugby player would experience after regular training.

Marking guidance

One mark should be awarded for each correct training adaptation.

Marking points

(1) [AO 1] Increased bone density/Bone density increases/Bone density

(2) [AO 1] Increased strength of tendons and ligaments/Tendons and ligaments become stronger/Tendons and ligaments can withstand more force

(3) [AO 1] Muscular hypertrophy occurs/Increased muscular hypertrophy/Muscles get bigger

14. Justify the importance of both **cardiovascular endurance** and **speed** for a 10km runner.

Marking guidance

Sub max two marks for each component of fitness.
2 x A02 marks for examples of each COF linked to running 10km.
2 x A03 marks for appropriate justification/impact.

Marking points

- (1) [AO 2] Run at a constant pace without tiring/Ability to continuously run without tiring/Continuously exercise without tiring
- (2) [AO 3] Run consistent split times/Run fast throughout the race/Does not fatigue later in the race
- (3) [AO 2] Sprint finish/Fast finish/Finish the race sprinting
- (4) [AO 3] Overtake at the end of the race/Gain a small margin/More chance of winning

15. Justify the importance of both **agility** and **balance** for a slalom skier.



Marking guidance

Sub max 2 marks for each component of fitness.

2 x A02 marks for linked examples of each COF linked to a slalom skier.

2 x A03 marks for appropriate justification/impact.

For A03 marks, the learner must justify the impact the component has on the performance of a slalom skier.

Marking points

(1) [A0 2] Agility to ski through gates/Ski through gates/Sharp turns

(2) [A0 3] Achieves a faster time/Do not slow down/Increased chance of success

(3) [A0 2] Balance to change weight distribution/Lean side to side/Lean to the side

(4) [A0 3] Good balance means they are more likely to record a faster time/Faster time/Increased chance of success

16. Explain why an endurance athlete might use **HIIT** as part of their training regime.

Marking guidance

No marks for describing HIIT. The answer must relate to why endurance athletes use it.

Marking points

- (1) [AO 2] Does not require a lot of space/More practical/Practicality
- (2) [AO 2] Recovery is aerobic/Rest is aerobic/Aerobic recovery
- (3) [AO 2] Working at the anaerobic threshold/Threshold training/Tolerance to lactic acid
- (4) [AO 2] Varied training method/Variance in training method/Prevent tedium
- (5) [AO 2] Flexible training/Can be adapted easily/Easily adapted
- (6) [AO 2] Short on time/Shorter session length/Quicker training time
- (7) [AO 2] Rapid fitness developments/Develops cardiovascular endurance/Develops stamina
- (8) [AO 2] Same effect as continuous training/Quicker benefits than continuous
- (9) [AO 2] Good for weight loss/Burns lots of calories/Burns calories

17.

A volleyball player uses plyometric training to maximise fitness for competition.
Evaluate the use of plyometrics for a volleyball player.
Describe the factors which affect **female** participation levels in volleyball.



Marking guidance

[6 Mark Level Descriptors](#)

A01 is KU and relates to knowledge of the plyometrics and factors to affect female participation.

A02 is Eg and are practical examples related to Volleyball. Answers must relate to a volleyball player.

A03 is DEV and relates to evaluation of the suitability of plyometrics. Credit other relevant evaluation using volleyball skills.

Do not credit reference to knowledge that is not in the OCR specification.

Do not credit knowledge that is not relevant to the question such other fitness components.

Marking points

- (1) [AO 1] Plyometric training is a method of training to increase power
- (2) [AO 1] Plyometric training uses bounding and hopping movements for approximately three sets of 12 to 15 repetitions
- (3) [AO 3] Plyometric training is suitable to develop the power associated with jumping higher
- (4) [AO 2] A volleyball player will be able to jump higher to block the ball
- (5) [AO 2] Increased jump height will cause better smashes

17.

A volleyball player uses plyometric training to maximise fitness for competition.
Evaluate the use of plyometrics for a volleyball player.
Describe the factors which affect **female** participation levels in volleyball.

- (6) [AO 3] Increase muscle power in the legs/Quadriceps power/Gastrocnemius power
- (7) [AO 2] Volleyball player is able to add power in to a dig shot from the squat position
- (8) [AO 3] The bounding movements are specific to the sport
- (9) [AO 2] Jumping up and down is similar to a player at the net blocking the ball
- (10) [AO 3] Plyometrics can be completed on a volleyball court
- (11) [AO 3] Volleyball skills can be incorporated into a plyometrics session
- (12) [AO 2] Jumping for a smash can be incorporated in the jumping set
- (13) [AO 3] Plyometrics has a high risk of injury which could impact fitness development of the volleyball player
- (14) [AO 1] Role models
- (15) [AO 2] Fewer female role models means females do not have an athlete to emulate
- (16) [AO 1] Volleyball receives less media coverage
- (17) [AO 2] Less exposure on media platforms means females may be attracted to those sports with more coverage such as football
- (18) [AO 1] Gender
- (19) [AO 2] Volleyball as a non-contact sport may be seen as a more appropriate sport for females
- (20) [AO 1] Education
- (21) [AO 2] Volleyball being part of the school PE curriculum will determine if females have opportunity to play
- (22) [AO 1] Discrimination
- (23) [AO 2] Unfair treatment of females when joining a volleyball club may deter continuing to play
- (24) [AO 1] Opportunity/access
- (25) [AO 2] There may be no volleyball clubs for females in the local area
- (26) [AO 2] Clubs rely on voluntary coaches
- (27) [AO 1] Culture
- (28) [AO 2] Research shows that some cultures value sport for females less
- (29) [AO 1] Family
- (30) [AO 2] Females would be involved with volleyball from exposure by their parents/Parental role models
- (31) [AO 2] Parents need to be able to pay for training/Disposable income
- (32) [AO 2] Parents are the ones to transport their daughters to the clubs

18.

State two methods a hockey coach could use to prevent injury to their players. Give a practical example of each method.



Marking guidance

Submax 2 marks for AO1 points.
Accept alternative examples for the AO2 points.

Marking points

- (1) [AO 2] Personal protective equipment/PPE/Protective equipment
- (2) [AO 1] Gum shield/Protective gloves/Shin pads
- (3) [AO 1] Correct clothing and footwear
- (4) [AO 2] Under garment to keep warm/Astro trainers/Wicking fabric to remove sweat
- (5) [AO 1] Appropriate level of competition
- (6) [AO 2] Age ranges/Youth and senior teams/Men's and Women's teams
- (7) [AO 1] Use of warm up/Cool down/Warm up
- (8) [AO 2] Pulse raiser before training/Stretching/Skill familiarisation
- (9) [AO 1] Lifting and carrying equipment safely
- (10) [AO 2] Moving goal posts on their wheels/Not lifting goal posts