GCSE

Physical Education

J587/01: Physical factors affecting performance

General Certificate of Secondary Education

Mark Scheme for June 2024

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

MARKING INSTRUCTIONS

PREPARATION FOR MARKING

RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

   YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor messaging system, or by email.

5. **Crossed Out Responses**
   Where a candidate has crossed out a response and provided a clear alternative then the crossed-out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed-out response where legible.

   Rubric Error Responses – Optional Questions
   Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the

highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses
When a multiple-choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses
When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7. Award No Response (NR) if:
   - there is nothing written in the answer space

   Award Zero '0' if:
   - anything is written in the answer space and is not worthy of credit (this includes text and symbols).

   Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
   If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

10. For answers marked by levels of response:
    a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
    b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
	Tick
	Cross
BOD	Benefit of doubt. Must be accompanied with a tick
TV	Too vague
REP	Repeat of a correct answer which has already been credited
IRRL	Significant amount of material which doesn't answer the question
SEEN	Noted but no credit given / indicates sub-max reached where relevant
BP	Blank page
KU	Knowledge and understanding / indicates AO1 on extended response Q (*)
EG	Example/Reference / indicates AO2 on extended response Q (*)
DEV	Development / indicates AO3 on extended response Q (*)
L1	Level 1 response on extended response Q (*)
L2	Level 2 response on extended response Q (*)

Annotation	Meaning
L3	Level 3 response on extended response Q (*)
S	Sub-max reached

- **KU, EG** and **DEV** are used instead of ticks on the extended response question to indicate where knowledge or development points from the indicative content have been made.

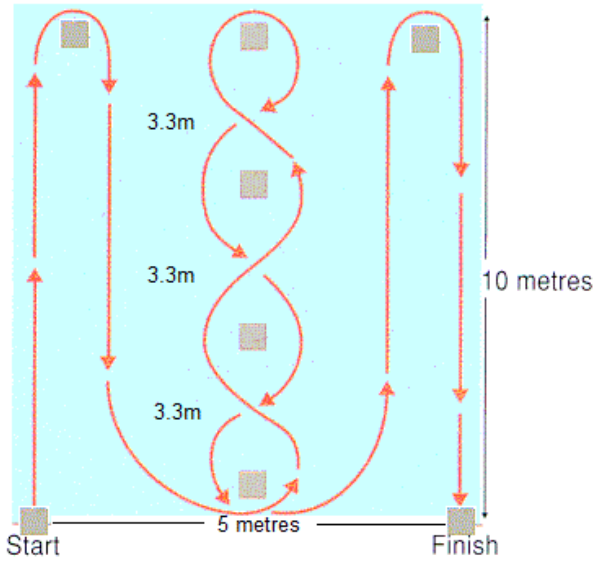
- On the extended response question (*), one KU, EG or DEV does not necessarily equate to one mark being awarded; the marking is based on a levels of response mark scheme which awards a level and mark holistically based upon the quality of the response overall against the levels descriptors.

12. **Subject Specific Marking Instructions**

Section A

Question			Answer	Marks	Guidance
1	(a)		One mark for: A rigid shell around vital organs / heart / lungs	1 (AO1)	**Accept**: other suitable descriptions of a rigid shell, e.g. framework / cage around lungs / heart = ✓ **Accept**: absorbs impact to the body / chest or acts as a shield / barrier or equivalent = ✓ **Accept**: 'It covers the lungs / heart / vital organs' or 'surrounds the lungs' = BOD **Do not accept**: 'protects lungs / heart' on its own = TV
1	(b)		One mark for: (accept other sporting examples if relevant) (Cranium) protects / absorbs impact to the **brain** when **heading** a football **OR** it protects the **brain** when being punched in the **head** in boxing **OR** it protects the **brain** when being hit in the **head** with a hockey stick **OR** it protects the **brain** when tackling or being tackled in rugby	1 (AO2)	NB. The cranium protects the brain, not the head so brain is a key part of the answer. **Accept**: reverse arguments, e.g. if you didn't have a cranium … **Do not accept**: 'It protects the **head** from a punch in boxing' = TV (cranium does not protect the head) **Do not accept**: Responses that don't reference a sporting example where the brain may be damaged. E.g. 'It protects brain in football' = TV
2	(a)		One mark from: 1. Muscles become larger / bigger / increase in size / grow 2. Increase in muscle mass 3. Thickening of muscle fibres 4. Increase in cross-sectional area of muscle	1 (AO1)	**Accept**: 'Increase of muscles' = BOD 2 **Accept**: 'When you gain a lot of muscle' = BOD 2 **Do not accept**: 'Muscles become stronger' on its own = TV **Do not accept**: Hypertrophy of muscle (in question) **Do not accept**: more muscle fibres = TV **Do not accept**: 'How big the muscles are' = TV

2	**(b)**		Two marks from: 1. Weight (training) **OR** weights **OR** resistance training 2. Plyometrics 3. Circuit (training) **OR** circuits 4. HIIT / High Intensity Interval training	**2** (AO2)	Apply marking instructions for answers with more than two answers (see page 3 of MS) **Accept**: interval training = BOD 4 **Accept**: High intensity training / HIT = BOD 4 **Accept**: Weight lifting = BOD 1 **Do not accept**: fartlek or continuous = TV **Do not accept**: Gym training = TV **Do not accept**: Strength training = TV **Do not accept**: Named exercises, e.g. bicep curl = TV
3	**(a)**		One mark for: Prevent backflow of **blood into** the **atria** **OR** prevent backflow of **blood from** the **ventricles**	**1** (AO1)	**Do not accept**: **'**Prevent backflow of blood' on its own = TV **Do not accept**: 'Prevent backflow of blood into the heart' = TV **Do not accept**: 'Prevent backflow into atria' = TV (no mention of blood) **Do not accept: '**stop backflow of blood into chambers' = TV **Do not accept**: 'Prevent backflow of blood from ventricles into the **aorta'** = X **Do not accept**: 'prevent backflow of blood into **ventricles'** = X
3	**(b)**		One mark for: Semilunar / aortic / pulmonary (valve)	**1** (AO1)	**Do not accept**: bicuspid or tricuspid valve (in question) **Do not accept**: mitral (= bicuspid) **Do not accept**: aorta = TV
4			One mark for: **(B)** Patella	**1** (AO1)	
5			One mark for: **FALSE**	**1** (AO1)	

6	**(a)**	**(i)**	One mark for:  	**1** (AO2)	**Accept:** Line that continues without arrows if it is clearly correct (as it continues from the arrowed line on the QP) **Do not accept**: errors that send a runner the wrong way (often from the first cone, or as the runner goes round the bottom cone). **If in any doubt, consult your TL** **Do not accept**: if line does not go round top left or top right cone = TV **Where to annotate:** ✓ to the right of 'finish' X next to the first point that the line goes in wrong direction TV next to point where it is not clear / unfinished SEEN if no response (and input NR) Do not stamp an annotation on the line itself.
6	**(a)**	**(ii)**	One mark for: **10 metres**	**1** (AO1)	**Accept**: m for metres, e.g. 10m

<table>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>One mark from:
<table>
<tr><th></th><th>Arteries</th><th>Veins</th></tr>
<tr><td>1.</td><td>Thick / muscular walls</td><td>Thin / less muscular walls</td></tr>
<tr><td>2.</td><td>Thick smooth muscle (layer)</td><td>Thin smooth muscle (layer)</td></tr>
<tr><td>3.</td><td>Elastic walls</td><td>Non-elastic walls OR less elastic walls</td></tr>
<tr><td>4.</td><td>Small(er) / narrow lumen</td><td>Large(r) / wide lumen</td></tr>
<tr><td>5.</td><td>Blood flow away from heart</td><td>Blood flow towards heart</td></tr>
<tr><td>6.</td><td>High(er) blood pressure</td><td>Low(er) blood pressure</td></tr>
<tr><td>7.</td><td>High(er) speed of blood flow</td><td>Low(er) speed of blood flow</td></tr>
</table>
</td>
<td>1

(AO1)</td>
<td>Apply marking instructions for responses with more than two answers (see page 3 of MS)

Both sides of the table must be correct.
Annotate with tick between 2 correct differences.
Put VG or X next to the specific answer it refers to.
Accept: ‘(arteries) thick muscular tissue and (veins) thin muscular tissue’ = BOD 1
Accept: ‘arteries carry oxygenated blood away from heart and veins carry deoxygenated blood back to heart’ = ✓5

Accept: ‘arteries carry <u>deoxygenated</u> blood away from heart and veins carry <u>oxygenated</u> blood back to heart’ = BOD 5

Do not accept: Thick lumen (arteries) and thin lumen (veins) = TV</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>One mark for:

Wall throw</td>
<td>1

(AO1)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>(a)</td>
<td></td>
<td>One mark for:

Frontal</td>
<td>1

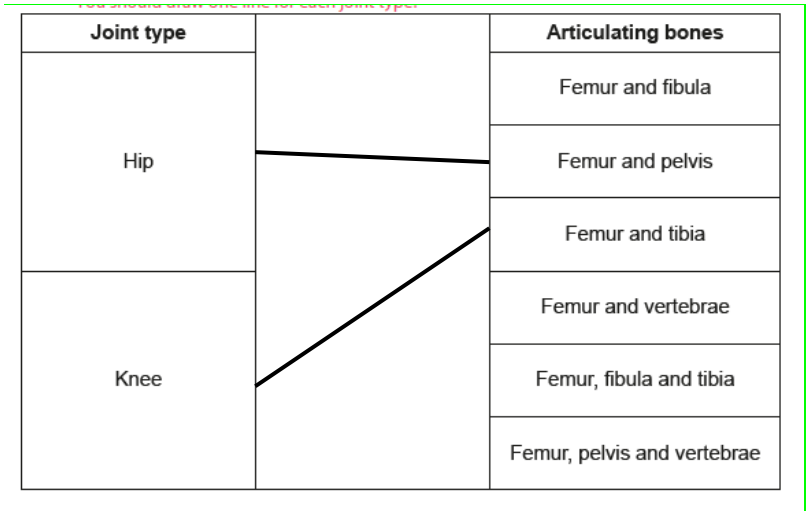
(AO3)</td>
<td>Apply marking instructions for answers with more than one plane of movement named (see page 3 of MS).</td>
</tr>
</table>

9	**(b)**		One mark for: **Abduction**	**1** (AO3)	Apply marking instructions for answers with more than one movement (see page 3 of MS). **Do not accept**: descriptions, e.g. raised sideways / up / out to the side / etc. = TV 'adduction' = X
10			One mark for: Makes the bones harder / stronger / thicker / denser **which** prevents / reduces the risk of a broken bone / fracture during a rugby tackle **OR** calcium makes bones harder **which** prevents / reduces the risk of a broken bone	**1** (AO2)	Answers must be **explanations** that include an example from a contact sport **OR** an applied example of a mineral, e.g. calcium / phosphorus **Accept**: 'so when you go into a rugby tackle your bones are stronger and not brittle' = BOD ('less brittle' implies less risk of fracture) **Accept**: 'bigger bones' or 'bones stay strong' if explained and with an example **Do not accept:** 'reduced risk of injury' on its own = TV (must refer to bone injury) **Do not accept**: 'makes the body stronger' = TV **Do not accept:** answers that say how minerals help in other ways, e.g. give a rugby player energy.
11			One mark for: Intercostals	**1** (AO1)	**Accept:** diaphragm / abdominals / scalenes / pectoralis minor / pectoralis major / pectorals / sternocleidomastoid / serratus anterior / latissimus dorsi = BOD **Do not accept**: abbreviations, e.g. pecs / abs / lats = TV
12			One mark for: Capillaries **OR** arterioles **OR** venules	**1** (AO1)	**Accept:** incorrect spellings if the answer is clear **Do not accept:** pulmonary artery or pulmonary vein (or other named arteries or veins)

13			One mark from: 1. The ability (of levers) to **move** (large) loads with a small amount of effort 2. distance from effort to fulcrum is greater than distance from load to fulcrum 3. effort arm is longer than load arm 4. load ÷ effort	**1** (AO1)	**Accept**: 'moving loads efficiently' or 'moving loads easier' or 'moving loads with less effort' **Accept**: resistance for load **Accept**: effort arm ÷ load arm = ✓ **Accept**: reverse arguments, e.g. load arm is shorter than effort arm = ✓ **Accept**: 'move objects more easily' = BOD 1 **Accept**: small input for a large output = BOD 1 **Do not accept**: load is greater than effort = TV **Do not accept**: one arm is longer than the other arm = TV **Do not accept**: 'the fulcrum is closer to the load' on its own = TV **Do not accept**: 'more load can be moved' on its own = TV
14			One mark from: 1. Build up of lactic acid 2. Tiredness / fatigue 3. Overheating 4. Muscle soreness / aches / pains	**1** (AO2)	Apply marking instructions for responses with more than one effect (see page 3 of MS) **Accept:** one-word answers for this question (as per MS) **Accept**: 'lactic acid' on its own = BOD 1 **Accept**: nausea / light headed = BOD **Do not accept:** too much strain on muscles = TV **Do not accept**: injury = TV **Do not accept**: 'increased temperature' on its own = TV (not a negative unless it adds 'to a dangerous level' or eq) **Do not accept:** DOMS = TV (not short-term)

15			One mark from: 1. A freely moveable joint 2. A joint that allows movement	**1** (AO1)	**Accept:** named movements for MP 2, e.g. a joint that can flex / extend / rotate **Do not accept:** has named features of a joint, e.g. 'a joint that contains synovial fluid' on its own = TV **But**, 'a joint that contains synovial fluid and can flex and extend' = ✓ **Do not accept**: a place where 2 (or more) bones meet = TV
16	**(a)**	**(i)**	One mark for: **Zayn**	**1** (AO3)	
16	**(a)**	**(ii)**	One mark for: **Ali**	**1** (AO3)	
16	**(a)**	**(iii)**	One mark from: 1. Reversibility / injury / holiday / did not train between tests / poor training technique 2. Didn't warm up / stretch for post-test **OR** cold body temperature for post-test 3. Shorter hamstrings 4. Lack of motivation 5. Incorrect measurements / invalid results	**1** (AO3)	Apply marking instructions for responses with more than one reason (see page 3 of MS) **Accept**: causes of invalid results, e.g**.** knees bent in pre-test / cheated in pre-test / test carried out incorrectly / incorrect technique used = ✓5 **Do not accept**: muscle fatigue / tiredness = TV **Do not accept**: wasn't checked properly = TV **Do not accept**: could not perform under pressure = TV

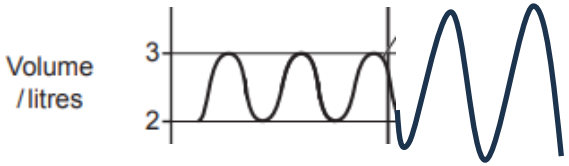
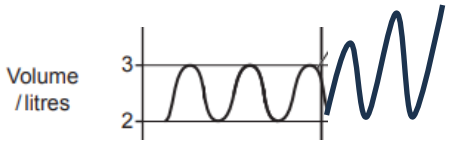
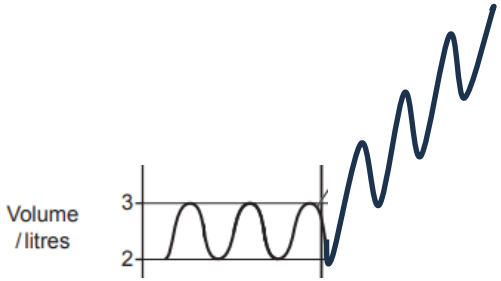
17			Two marks for: 1. (Systemic circulation): carries **blood** from the **heart / aorta / left ventricle** to the **body / muscles / tissues** 2. (Pulmonary circulation): carries **blood** from the **heart / pulmonary artery / right ventricle** to the **lungs**	**2** (AO1)	Ignore any references to oxygenated or deoxygenated blood **Accept**: (systemic) **blood** from **body** back to **heart** = BOD1 **Accept**: (systemic) **blood** from **left** ventricle to **right** atrium = ✓1 **Accept**: (pulmonary) **blood** from **lungs** to **heart** = BOD 2 **Accept**: (pulmonary) **blood** from **right** ventricle to **left** atrium = ✓2
18			One mark from (examples include): 1. **Sprinting** at the start / end of the race 2. An **increase** in speed / pace to overtake another runner 3. An **increase** in speed / pace to get to a water station	**1** (AO2)	**Accept:** other suitable examples showing an increase in running speed **Accept**: 'increase pace / speed / sprinting' = BOD (in a marathon is implied) **Do not accept**: 'at the start / end of the race' on its own = TV **Do not accept**: when tired / when lactic acid builds up / anaerobic / high intensity = TV
19			One mark for: **Intensity**	**1** (AO3)	'Interval' = X

20			Two marks for:  	**2** (AO1)	One mark for each line correctly linking the joint to the correct articulating bones. **Place tick inside articulating bones box** **Do not accept:** more than 1 line drawn from a joint – stamp **TV** near origin of the lines **Do not accept**: knee – femur, fibula and tibia = X

Section B

Question			Answer	Marks	Guidance
21	**(a)**		Three marks for: 1. (Muscles work together as) an **antagonistic** pair / **antagonistically** 2. Biceps is prime mover / agonist **OR** biceps contracts 3. Triceps is antagonist / relaxes	**3** (AO3)	Ignore any explanation of how position A is achieved or extension of the elbow – stamp SEEN **Accept:** bicep for biceps and tricep for triceps **Accept**: 'biceps tense up' = BOD 2 **Do not accept**: 'triceps extends / lengthens' or 'biceps shortens' on its own = TV **Do not accept**: biceps and triceps work together = TV **Do not accept**: contradictory answers for movement from A to B, e.g. biceps relaxes (X) and is the agonist (SEEN)
21	**(b)**		One mark from: 1. Work with **agonist** muscle / biceps (to produce movement) 2. Stabilise the joint / arm / shoulder / origin 3. Prevent unwanted movement	**1** (AO3)	**Accept**: 'Supports the **agonist** / biceps' = BOD **Do not accept**: 'Keep arm / joint balanced' = TV **Do not accept**: 'Stabilise the muscles' = TV **Do not accept**: 'Stabilise / support the movement' = TV **Do not accept**: 'Keeps bones in place' = TV

21	**(c)**		Two marks for: 1. (Ligaments) stabilise / support **joints** **OR** reduce abnormal joint movement **OR** prevent / reduce the risk of joint injury / dislocation 2. (Tendons) (when the muscle contracts) the tendon moves / pulls on the **bone** to lift the weights **OR** transmit the effort / power from the muscle to move the bones	**2** (AO2)	**Accept:** radius for bone and biceps for muscle **Accept:** ligaments keep the bone in place / keep joint together = BOD **Do not accept**: ligaments stabilise the movement = TV **Do not accept**: ligaments absorb shock = TV (not relevant to this movement) **Do not accept**: ligaments allow movement to occur = TV **Do not accept**: tendons pull on muscles = TV **Do not accept**: tendons connect muscle to bone and allow for movement = TV
21	**(d)**		Four marks for: 1. (Bone) bone density increases / bones become stronger **OR** increase in mineral storage / calcium absorption 2. (Effect) less chance of breaks / fractures 3. (Heart) heart becomes stronger / increase in stroke volume / cardiac output / lower **resting** heart rate / hypertrophy / capillarisation 4. (Effect) **Increased** aerobic capacity / **increased** cardiovascular endurance / **more oxygen** to working muscles / **increased** resistance to fatigue	**4** 2 x (AO1) 2 x (AO2)	**If 'effect on performance' includes long-term effect, credit when seen.** **Accept:** Bones harder = BOD 1 **Accept:** tiredness for fatigue in MP 4 **Accept:** '**prevent** breaks / fractures' on its own = BOD 2 **Accept**: 'heart muscle hypertrophy' = BOD 3 **Accept**: 'heart can pump harder' = BOD 3 **Accept**: 'heart gets bigger' = BOD 3 **Do not accept**: 'more blood to muscles' = TV **Do not accept**: 'heart can perform longer' = TV **Do not accept**: more calm / less anxious (linked to lower resting heart rate) = TV **Do not accept**: reduced risk of injury = TV (must be reference to bone injury)
22	**(a)**		One mark for: 1 litre	**1** (AO3)	**Answer must have correct units** Accept: 1L (for litre)

22	**(b)**		One mark for:  	**1** (AO3)	Answer must show an increase in the size/amplitude of the wave, but it does not have to extend below the 2 litre mark, e.g. – see below = ✓  **Do not accept**: (no increase in amplitude – see below) = TV  **Do not accept**: answers that show an increase in amplitude but also an amplitude that is the same as at rest = TV (contradictory)
22	**(c)**		Four marks for: 1. Bronchioles 2. (Function) Transport air / oxygen (from bronchus) to alveoli / transports air / carbon dioxide from the alveoli 3. Alveoli 4. (Function) Allow gaseous exchange / diffusion to take place	**4** (AO1)	**If feature is wrong, use SEEN for function (no credit can be given if feature is wrong)** **Accept**: (bronchioles) takes air to the lungs = BOD 2 **Accept**: 'gaseous exchange' on its own = ✓4 **Do not accept**: descriptions that do not give a function, e.g. (bronchioles) branches that contain many alveoli = TV **Do not accept:** Parts of the respiratory system that are not located within the lungs such as bronchus / trachea / capillaries

22	**(d)**		Four marks from: 1. Player A's respiratory / **breathing rate** will be faster (than player B) 2. Player A's **tidal volume** will be greater (than player B) 3. Player A's **minute ventilation** will be greater (than player B) 4. Player A will be taking in larger volumes of **oxygen** (than player B) 5. Player A will have higher rates of **gas exchange** / diffusion (than player B) 6. Player A will have more blood flow in the capillaries at the **alveoli** (than player B) 7. Player A will have warmer respiratory muscles (than Player B)	**4** (AO2)	**For changes to other body systems use IRRL**, e.g. more blood flow to muscles (not respiratory system) **Accept:** minute volume for minute ventilation **Accept:** reverse arguments, e.g. B will have a lower tidal volume **Accept:** 'A takes in more air' or 'breathing heavier' = BOD 2 **Accept**: 'A takes in more air per minute' = ✓ 3 **Accept:** 'A gets rid of larger volumes of CO_2' = ✓4 **Accept:** 'A gets rid of CO_2 faster' = ✓4 **Do not accept**: greater increases to player B's respiratory values **after** the start of the match - use **SEEN**
23	**(a)**		One mark for: Skill rehearsal	**1** (AO2)	**Accept:** skill practice / skill-related exercise = BOD **Do not accept:** Skill (on its own) / skill testing / skill-based drills / sport-specific drills = TV

23	**(b)**		Three marks for: 1. (Component) pulse raiser / dynamic movement (Benefits sub-max. 2 marks) 2. Increases temperature of body / muscles **OR** prepares the body for physical activity 3. Increases heart rate 4. Increases stroke volume 5. Increases cardiac output 6. Increases breathing rate 7. Increases tidal volume 8. Increases minute ventilation 9. **Increases** blood flow / oxygen to **muscles OR** redistribution of blood **OR** activates vascular shunt mechanism 10. Increases the speed / strength of muscle contraction 11. Increases flexibility / pliability of muscles / joints 12. Increases pliability of ligaments / tendons 13. **Reduces risk** of injury **OR** 14. (Component) mobility / stretching (Benefits sub-max. 2 marks) 15. Increases flexibility / pliability of muscles / joints **OR** increases range of movement 16. Increases **muscle** temperature **OR** prepares the **muscles** for physical activity 17. Increases pliability of ligaments / tendons 18. Increases the speed / strength of muscle contraction 19. **Reduces risk** of injury 20. **Increases** blood flow / oxygen to **muscles OR** redistribution of blood **OR** activates vascular shunt mechanism	**3** 1 x (AO1) 2 x (AO2)	**One mark for named component** **Two marks for related benefits** **Apply marking instructions for answers with more than two benefits (see page 3 of MS)** **Do not accept**: jogging for pulse raiser = TV If name of component is an example, e.g. jogging = TV benefits **can** still be credited. If no named component or name is incorrect, do not credit benefits **Accept**: Two correct benefits in 'benefit 1', e.g. (pulse raiser) 'increases heart rate and breathing rate' = ✓✓ and mark benefit 2 with S **Accept**: blood flows quicker to muscles = BOD 9 or 20 **Do not accept**: warms up the muscles (in question) **Do not accept:** '**prevents** injury' = TV **Do not accept:** 'loosens muscles' = TV **Do not accept**: 'increases blood flow to body' = TV (pulse raiser) reduces fatigue = TV

Level 3 (5–6 marks)

- detailed knowledge & understanding
- clear and consistent practical application of knowledge & understanding
- effective analysis/evaluation and/or discussion/explanation/development
- relevant information drawn upon from other areas of the specification
- accurate use of technical and specialist vocabulary
- there is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.

Level 2 (3–4 marks)

- satisfactory knowledge & understanding
- some success in practical application of knowledge & understanding
- analysis/ evaluation and/or discussion/explanation/development attempted with some success
- some relevant information drawn upon from other areas of the specification
- technical and specialist vocabulary used with some accuracy
- there is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.

Level 1 (1–2 marks)

- basic knowledge & understanding
- little or no attempt at practical application of knowledge & understanding
- little or no attempt to analyse/ evaluate and/or discuss/explain/develop
- little or no relevant information drawn upon from other areas of the specification
- technical and specialist vocabulary used with limited success
- the information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.

(0 marks)

- no response or no response worthy of credit.

Level 3 Discriminators

- detailed knowledge & understanding of a cool down and its physical benefits
- detailed explanation showing how different types of guidance can improve safety when coaching sport
- use of different and relevant practical examples across both parts of the question
- All AOs are well covered for Level 3; some imbalance between them may be present for 5 marks. At 6 marks, both are equally well addressed

Level 2 Discriminators

- satisfactory knowledge & understanding of a cool down and its physical benefits
- satisfactory explanation showing how different types of guidance can improve safety when coaching sport
- some use of different and relevant practical examples across both parts of the question
- Some success at more developed AO2 and/or AO3 points moves the response into Level 2 (AO2 or AO3 would be 3 marks; both attempted with some success = 4 marks)

Level 1 Discriminators

- basic knowledge & understanding of a cool down and/or its physical benefits
- basic explanation showing limited understanding of how different types of guidance can improve safety when coaching sport
- limited use of different and relevant practical examples across both parts of the question
- Responses only demonstrating AO1 knowledge and understanding are Level 1

Q23 (c)* Indicative content (6 marks - 1 x AO1, 2 x AO2, 3 x AO3)

AO1 = numbered points = KU; AO2 = EG; AO3 = bullet points = DEV;

(Cool down components):

1. Low intensity exercise / pulse lowerer
   EG - slow jogging across the football pitch
2. Stretching
   EG – named stretching exercise
   EG – (named type of stretching) static / dynamic / maintenance / PNF

(Physical benefits):

3. **Gradually** lowers heart rate **OR** maintains elevated HR
4. Maintains circulation of blood / oxygen
5. Reduces risk of blood pooling
6. **Gradually** lowers breathing rate **OR** maintains elevated breathing rate
7. **Gradually** lowers body / muscle temperature **OR** maintains elevated body temperature
8. Helps removal of lactic acid / waste products
9. Reduces the risk of muscle soreness / muscle stiffness / DOMS
10. Aids recovery by stretching muscles
11. Increases muscle flexibility / pliability / elasticity **OR** increases range of movement
12. Reduces risk of damage to joints
13. Reduce risk of fainting / light headedness / nausea
14. Reduce / speed up recovery time

Do not credit: transition to a resting state (in question)

Do not credit: 'cool down reduces risk of injury' on its own

(**Explain** how using different **types of guidance can improve safety** when coaching in sport)

15. Visual guidance from accurate demonstrations / posters / videos
    EG – a coach demonstrating a somersault in gymnastics
- To provide a correct mental image
- Learner must be able to replicate the demonstration otherwise it can lead to injury
- Used alongside verbal guidance to reinforce understanding of what is required
- Demonstrations must be clear so performer can see / have a mental image of safe techniques

16. Verbal guidance is explaining how to perform an activity / skill
    EG – an athletics coach explaining how to throw javelin with correct technique
- To provide clear concise instructions / teaching points so correct technique is performed
- Coach needs to be careful not to overload performer / give wrong information / create misunderstanding / confuse performer
- Useful alongside visual guidance to reinforce understanding of what is required
- Questioning can help ensure player understanding / knows how to perform safely

17. Manual guidance is physically supporting a performer **OR** causing a forced response
    EG - A swimming coach supporting a novice swimmer in the pool
- To help develop a physical understanding / feel for the movement / kinaesthesis
- To provide confidence **OR** to reduce fear / anxiety in dangerous situations
- To reduce the risk of injury

18. Mechanical guidance is the use of aids / apparatus **OR** physically restricting movement
EG – use of trampoline harness / armbands in swimming
- To help develop a physical understanding / feel for the movement / kinaesthesis
- To provide confidence **OR** to reduce fear / anxiety in dangerous situations
- To reduce the risk of injury

Do not credit: 'increase safety (in question)

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