



Oxford Cambridge and RSA

GCSE (9–1) Physical Education

J587/01: Physical factors affecting performance

MARK SCHEME

Duration: 1 hour

MAXIMUM MARK 60

This document consists of 16 pages

MARKING INSTRUCTIONS

PREPARATION FOR MARKING SCORIS

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: Scoris 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 scoris and mark the 10 practice responses (“scripts”) and the 10 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 Scoris 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 Scoris 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 scoris **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 scoris messaging system, or e-mail.



9. Assistant Examiners will send a brief report on the performance of candidates to your Team Leader (Supervisor) by the end of the marking period. The Assistant Examiner's Report Form (AERF) can be found on the RM Cambridge Assessment Support Portal (and for traditional marking it is in the Instructions for Examiners). Your report should contain notes on particular strength 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:

- To determine the level** – start at the highest level and work down until you reach the level that matches the answer
- 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 used in the detailed Mark Scheme

Annotation	Description	Annotation	Description
	Tick	KU	Knowledge and understanding / indicates AO1 on extended response Q (*)
	Cross	EG	Example/Reference / indicates AO2 on extended response Q (*)
BOD	Benefit of doubt	DEV	Development / indicates AO3 on extended response Q (*)
TV	Too vague	L1	Level 1 response on extended response Q (*)
REP	Repeat	L2	Level 2 response on extended response Q (*)
IRRL	Significant amount of material which doesn't answer the question	L3	Level 3 response on extended response Q (*)
SEEN	Noted but no credit given / indicates sub-max reached where relevant	S	Sub-max reached

Available but not used: 'BP' (blank page) – 'SEEN' is used

- **KU**, **EG** and **DEV** 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.

Section A			
Question	Answer	Marks	Guidance
1	Two from two of: 1. Allows gaseous exchange/diffusion 2. Allows oxygen to diffuse/move into the blood/capillaries 3. Allows carbon dioxide to diffuse/move from the blood/capillaries	2 2 x (AO1)	Pts 2 and 3 require direction of gas to be correct Into lungs/alveoli is TV Oxygen diffusion into blood is 2 marks (pt. 1 and 2)
2	D or pulmonary vein OR vena cava (is incorrectly labeled)	1 1 x (AO1)	
3	One mark for: 1. Freely moveable/allow for movement	1 1 x (AO1)	
4	Two from two of: 1. Humerus 2. Scapula	2 2 x (AO2)	Mark first 2 responses only Accept: phonetic spellings
5	Two from two of: 1. (Explanation) – Any performance/fitness gain that has occurred through training can be lost once training has stopped OR training must be maintained to prevent loss of performance/fitness 2. (Example) – appropriate practical example demonstrating reversibility	2 1 x (AO1) 1 x (AO2)	Do not accept: any reference to physical adaptations/gains are reversed (in question) Go back to where they were = TV If practical example is correct, as in pt 2, and shows explanation through e.g. then award 2 marks e.g. A weightlifter will lose their strength gained (1 x AO2) if they have been unable to lift weights for a while (1 x AO1) (due to injury)

Section A			
Question	Answer	Marks	Guidance
6	C. 20m for the multi-stage fitness and 30m for the speed test	1 1 x (AO1)	
7	Two from two of: Muscle A - Gastrocnemius Bone B - Tibia	2 2 x (AO1)	Accept phonetic spellings for each Do not accept: tibula or fibia for B or calf or shin
8	Two marks for two of: 1. Slippery/hard/wet/damaged surface (in or around the pool) 2. Loose fittings OR equipment left out 3. Too much chlorine/chemicals in pool 4. Overcrowded pool 5. (Ability/behaviour of) other swimmers 6. Depth of water/deep/shallow 7. Dirty water/poor water quality/litter/debris/waste	2 2 x (AO1)	Mark first 2 responses only Do not accept: consequences of hazard e.g. slipping/falling/drowning/collisions Water/chlorine on its own = TV
9	Three from three of: 1. Transverse is side to side/hip to hip/left to right and longitudinal is top to bottom/head to toe 2. (transverse) e.g. somersault/biceps curl/pedalling a bicycle 3. (longitudinal)e.g. pirouette/full turn/flat spin/twirl	3 3 x (AO3)	Accept: diagram if both axes are correct for 1 Do not accept: front to back (for transverse) Transverse is movement in sagittal plane (flexion/extension) and longitudinal is movement in transverse plane

Section A			
Question	Answer	Marks	Guidance
10	<p>One mark from:</p> <ol style="list-style-type: none"> (activity) any activity/event that requires aerobic energy production e.g. marathon/triathlon/800m+ (time) To achieve a faster time in an (mainly aerobic) event/activity (performance) Remain effective during a game/less fatigue during performance 	<p>1 1 x (AO2)</p>	<p>Running/cycling/swimming on its own = TV</p> <p>Long distance run/swim/cycle = BOD</p> <p>Do not accept a named performer e.g. Mo Farah</p>
11	<p>(a)</p> <p>One mark for:</p> <ol style="list-style-type: none"> Main/specific/different muscles (targeted at each station) OR involves repetition (reps) of exercises OR body weight is usually the resistance OR each station is timed OR rest period between each station <p>(b)</p> <p>Accept any combination that includes at least 2 arm exercises (bicep curls, pull ups, press ups)</p>	<p>2 1 x (AO1)</p> <p>1 x (AO2)</p>	<p>Train different parts of the body = TV</p> <p>Intense exercise followed by not as intense = TV</p> <p>Rest at the end = TV</p>
12	<p>Two from two of:</p> <ol style="list-style-type: none"> Protects the knees/bones OR prevents friction OR prevents bones rubbing/knocking together OR prevent wear and tear Acts a shock absorber/absorbs impact (of running) Provides support /stability Provides (some) flexibility Aids mobility/movement at the joint 	<p>2 2 x (AO3)</p>	<p>Look for a description rather than single word lists</p>

Section A					
Question			Answer	Marks	Guidance
			6. Helps to connect some bones (at cartilaginous joints) 7. Keeps airways open		
13			3 rd class lever	1 1 x (AO3)	Accept: 3 on its own
14			True	1 1 x (AO3)	
15			C. A common hazard in rugby is concussion	1 1 x (AO1)	
16			Transverse (plane)	1 1 x (AO1)	
17			Two from two of: 1. Jogging/whole body exercise/low intensity movements/slow dance 2. Stretching	2 2 x (AO1)	N.B. Exercises may be in either order

Section A				
Question		Answer	Marks	Guidance
18		<p>One mark for:</p> <p>1. Age/gender/weight/ranking/grading/skill/ability level</p> <p>Examples - Boxing occurs in weight categories – e.g. you won't have a heavyweight boxer fighting against a light boxer</p> <p>Football – less likely to be injured in a tackle if all participants same/similar age</p>	<p>1</p> <p>1 x (AO2)</p>	Level of competition must be linked to a practical example
19		A= Effort and B = Load	<p>1</p> <p>1 x (AO2)</p>	<p>N.B. 1 mark so only 1 tick</p> <p>Accept: Resistance for B = BOD</p>
20		False	<p>1</p> <p>1 x (AO1)</p>	

Section B				
Question		Answer	Marks	Guidance
21	(a)	5 marks for 5 of: 1. Increase in heart rate/HR 2. Increase in stroke volume/SV 3. Increase in cardiac output/Q 4. Increases blood flow/oxygen to (working) muscles 5. directs blood away from other organs OR less blood to other organs 6. Increase in blood pressure due to the increase in demand for oxygen (from the working muscles) 7. Increase in blood lactate/lactic acid/CO ₂ because muscles are working 8. Blood temperature increases to help control of body temperature 9. Vascular shunt OR vasodilation of blood vessels to muscles OR vasoconstriction of blood vessels to other organs	5 5 x (AO2)	Do not accept: long-term adaptations e.g. stronger heart Pt 4 - Blood flows to muscles = TV as need more/increase More blood to arms/legs = BOD pt. 4 Lactic acid builds up in muscles – TV Lactic acid produced – TV LA found in the blood – TV
	(b)	(i)	1 mark for: (Muscular hypertrophy) – muscle will increase in size/mass/growth	5 1 x Do not accept: Hypertrophy of muscle (in question)

Section B				
Question		Answer	Marks	Guidance
		(ii) 4 marks for 4 of: 1. Increase in power/strength (including tendon strength) 2. Increase in speed 3. Increase in (muscular) endurance OR increased resistance to fatigue OR go for longer 4. Increase in flexibility/range of movement/less chance of injury 5. Increase tolerance to lactic acid OR higher/delayed anaerobic threshold 6. Increased rate of removal of lactic acid 7. Increased/reduced/quicker recovery rate 8. Increased capillarisation at the muscles	(AO1) 4 x (AO1)	Muscles become faster = TV The performer becomes quicker = BOD LA to be removed = TV
22	(a)	1 mark for: Reaction time: The length of time it takes a performer to respond to a stimulus OR the time between the onset of the stimulus and the initiation of the response / movement 1 mark for:	4 2 x (AO1) 2 x	Do not accept “react” in definition of reaction time. Must use an equivalent word e.g. respond/move. But OK to use “react” in example

Section B				
Question	Answer		Marks	Guidance
		<p>Importance: (The quicker the sprinter can respond/react to the gun) the quicker they will get away from the blocks OR have an advantage over their opponents</p> <p>1 mark for: Speed: The ability to move quickly OR distance divided by time OR rate of change of position with respect to time</p> <p>1 mark for: Importance: (The quicker they are able to move their body/legs/run) the greater the chance of winning the race/getting a faster time</p>	(AO2)	<p>Look for the importance of the fitness component to a sprinter in examples, or sprinting is implied.</p> <p>Need to react quickly to the gun is TV. It does not explain the importance.</p>
22 (b)*	<p>Level 3 (5–6 marks)</p> <ul style="list-style-type: none"> 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. 		<p>6</p> <p>2 x (AO1)</p> <p>2 x (AO2)</p>	<p>Level 3 Discriminators</p> <ul style="list-style-type: none"> AO1, AO2 and AO3 are well covered. Detailed understanding of most components of a warm up, with clear examples of suitable exercises linked to a sprinter. Good knowledge of mental preparation techniques with some evaluation of their benefits There may be some imbalance between the two parts

Section B			
Question	Answer	Marks	Guidance
	<p>Level 2 (3–4 marks)</p> <ul style="list-style-type: none"> • 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. <p>Level 1 (1–2 marks)</p> <ul style="list-style-type: none"> • 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. <p><u>Components</u></p> <ol style="list-style-type: none"> 1. Pulse raiser - any exercise that increases heart rate <ul style="list-style-type: none"> • Jogging on the spot/light jogging 2. Mobility – any exercise that takes joint through full range of movement <ul style="list-style-type: none"> • Arm swings/hip circles/ankle rotations 3. Dynamic – any exercise that involves change of speed and direction 	<p>2 x (AO3)</p>	<p>of the question for 5 marks.</p> <ul style="list-style-type: none"> • At 6 marks, both aspects are well addressed with some specific evaluation of at least 2 mental preparation techniques <p>Level 2 Discriminators</p> <ul style="list-style-type: none"> • Some success at more developed AO2 and/or AO3 points • Good understanding of some components of a warm up, with some examples of suitable exercises • Some knowledge of mental preparation techniques is shown at the top of L2 <p>Level 1 Discriminators</p> <ul style="list-style-type: none"> • Responses demonstrate basic AO1 or AO2 knowledge and understanding • A limited description that may include an example of one or two components of a warm up • Little or no attempt to identify mental preparation techniques <p>(0 marks)</p> <ul style="list-style-type: none"> • No response or no response worthy of credit. <p>Question: <i>Using practical examples, describe the components of a warm up and evaluate the different mental preparation techniques that could be used to fully prepare the athlete for the race.</i></p>

Section B			
Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> • Shuttle runs/agility runs <p>4. Stretching – any exercise that increases range of movement/ reduces risk of injury</p> <ul style="list-style-type: none"> • Static stretches – e.g. hamstrings stretch, etc. • Dynamic stretches – e.g. lunges <p>5. Skill Rehearsal – any exercise that prepares performer for the race by replicating elements of the race</p> <ul style="list-style-type: none"> • Short 10m sprints/practice their starting technique <p><u>Mental Preparation Techniques</u></p> <p>6. Imagery</p> <ul style="list-style-type: none"> • Heightens or controls arousal levels (<u>AO3</u>) • E.g. The athlete using imagery to keep calm/get in the zone before the race <p>7. Mental rehearsal</p>		<p>Annotations:</p> <p>Use KU for numbered points = AO1</p> <p>Use EG for examples related to sprinting = AO2</p> <p>Use DEV for evaluations of mental preparation techniques = AO3</p> <p>Use SEEN for examples not applied to sprinter</p> <p>N.B. General evaluations about mental preparation techniques are valid but some evaluation specific to the technique(s) is needed to achieve top of level 3</p>

Section B				
Question	Answer		Marks	Guidance
	<ul style="list-style-type: none"> • Allows effective / clear / safe decision making (AO3) • E.g. The athlete visualises the sprint start • Both imagery/mental rehearsal can speed up reactions (AO3) <p>8. Selective attention</p> <ul style="list-style-type: none"> • improves concentration/focus or blocks out distractions (AO3) • e.g. An athlete uses selective attention to concentrate on the upcoming race <p>9. Positive thinking</p> <ul style="list-style-type: none"> • Increases motivation/confidence/self-awareness (AO3) • E.g. The athlete believes they are going to win/qualify for the race or telling themselves they are going to have a good start from the blocks <p>10. (General evaluations of mental preparation) (AO3)</p> <ul style="list-style-type: none"> • Heightens/controls arousal • Improves decision-making • Speeds up reactions • Improves focus/concentration or blocks out distractions • Increases confidence/motivation/self-awareness 			
23	(a)	<p>Three marks for 3 of:</p> <ol style="list-style-type: none"> 1. A has a lower resting respiratory rate or B has higher resting respiratory rate 2. A may be fitter (than B) or B may be less fit than A 3. A does a warm up or B does not do a warm up 4. A may not be working as hard as B or B working harder than A 	<p>3</p> <p>3 x (AO3)</p>	

Section B			
Question	Answer	Marks	Guidance
	<p>5. Suitable reference to different playing positions for A and B, e.g. player A may be in defence while B may be a midfield player</p> <p>6. A does a cool down or B does not do a cool down</p> <p>7. Both players have (almost) returned to resting respiratory rates after 15 minutes</p>		<p>Points 2 – 4 do not need reference to A and B e.g. B does not do a warm up = ✓</p> <p>Do not accept: A is fit on its own = TV</p>
(b)	<p>Four marks for 4 of:</p> <ol style="list-style-type: none"> (External) intercostals contract Diaphragm contracts/flattens This pulls or moves the rib cage up/out Increasing the volume of the thoracic cavity/thorax/lungs Decreasing the pressure within thoracic cavity/thorax/lungs or pressure within thoracic cavity is less than atmospheric pressure 	<p>4</p> <p>2 x (AO1)</p> <p>2 x (AO2)</p>	<p>N.B. If during expiration contraction of respiratory muscles = X</p> <p>Do not accept:</p> <p>More space in lungs = TV</p> <p>Decrease in pressure on its own = TV</p>
(c)	<p>(Performance) (sub-max 2 marks)</p> <ol style="list-style-type: none"> Causes fatigue in the muscles Causes pain/discomfort/soreness/aches resulting in decrease in performance 	<p>3</p> <p>3 x (AO3)</p>	<p>N.B. Sub-max 2 for points about effect of lactic acid on performance and recovery</p> <p>Do not accept: cramp</p>

Section B				
Question		Answer	Marks	Guidance
		4. Player A's warm up may mean less lactic acid build up (Recovery) (sub-max 2 marks) 5. Recovery will be longer if more lactic acid has built up OR slows down recovery rate 6. lactic acid causes HR/BR to stay higher than normal		