

Examiners' Report June 2018

GCE Physical Education 9PE0 01



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Introduction

To be successful in this paper, candidates need a broad range of knowledge from across the specification. This year, it is clear that many centres have been utilising the resources that Pearson has provided and those that have done well have been using the topic guides and the inside track magazine to support their learning.

There is intentionally no text book so that materials can be kept 'live' over the life of the specification. These resources are designed to support teachers. It seems apparent that some centres are not accessing these resources and consequently candidates have performed less well.

There was a large number of examples of learner work that was difficult to read, and centres must ensure that writing is legible as part of their preparation.

Some of the new topics in the specification had not been learned well: the priming exercise was an example of this. Some candidates even chose to write in their response that they had not been taught this.

Learning what each command word requires to ensure the answer is in the right depth, is critical to a good performance in the examination. Key terminology needs to be learnt from the specification and topic guides. There are straightforward marks to be gained from knowledge of definitions.

In 8 and 15-mark questions, a sustained response needed to be given. Candidates have done this well, and were able to structure answers appropriately, although there was a lack of analytical thinking amongst the more able candidates.

There was evidence of structure in answers, with introduction, conclusion and appropriate paragraphing in the 15-mark responses. There were some centres where candidates had been taught to attempt counter-arguments and pros and cons, or to provide an impact on performance, aiding their candidates to give more analysis and therefore access higher bands.

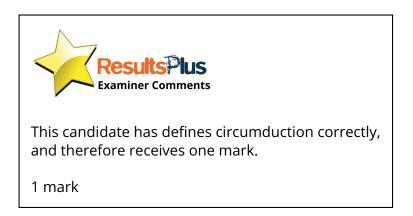
Question 1 (a)

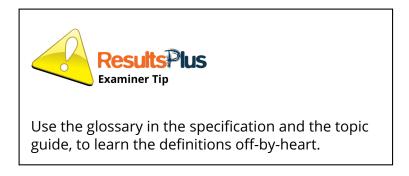
The majority of candidates was able to define the term 'circumduction', usually likening it to a cone shape or a circle shape. Some errors confused this with rotation.

Definition questions are always accessible marks. Any key word in the specification can be tested. Both the glossary and the topic guides are essential reading in preparing candidates for this.

- 1 Define the following movements:
 - (a) circumduction

	(1)
Circumduction involves flexion, extension, adduction and al	oduction
creating a cone-like movement at the shoulder joint	·





Question 1 (b)

the toes towards the ground

In this question, there was some confusion between plantar flexion and dorsi flexion. It is essential that candidates know all the movement terminology. The topic guides and the specification, as well as the glossary in the specification, are the most useful resources for this.

As long as the movement was described accurately, some flexibility with the wording was permitted.

(b) plantar flexion		(1)
Porting of	the tocs downwards.	
	This candidate defines plantar flexion accurately, and therefore is awarded 1 mark.	
(b) plantar flexion	-	(1)
The action of In	creasing the joint angle all populing at the	ankle and pinding



eig Stanling on tip toes



Check back through your answers to ensure you have not confused any terms

Most candidates were able to talk about an isometric contraction as the muscle neither shortening or lengthening. Some examples did not reference a muscle group, referring, for example, to a plank or a rugby scrum. Marks were only awarded where the examples referred to the specific muscle that was contracting.

Some candidates talked about the action being still but did not reference muscle contraction: this would be too vague. The most common example was the plank, but only the best candidates included a muscle with this.

2 Using a sporting example, describe the term isometric contraction.

Isometric contraction is whom a mode sh neither and shorten when performing a contract coultant



This candidate receives 2 marks.

One mark is given for a muscle neither shortening or lengthening because the candidate also references them contracting in the example.

One mark is given for the muscle and movement - abdominals in 'the plank'.

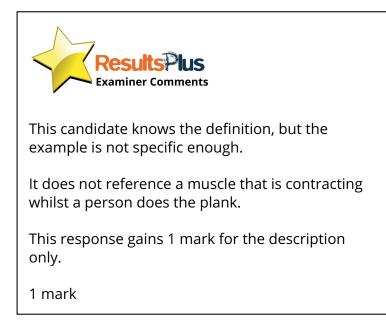
2 marks



Ensure examples contain enough information to gain the mark: in this example, both the muscle and the sport were needed (2)

Bometric contraction is when the formuscle stays the Same tength under tension. A sporting example of isometric Contraction would be doing the plante.

(2)



In this question, most candidates knew the third law and were able to summarise it and could often apply it to an example. A few candidates confused it with different Newton's Laws.

The most common accurate examples were a sprinter on the blocks or a dive at the start of a swim. These were very clear examples for candidates to demonstrate their understanding. When a simple example was used, it was easier for candidates to explain it more clearly.

3 Using a sporting example, summarise Newton's Law of Action and Reaction.

Newton's law of action and read	ction stated every action
has an equal and opposite	reaction for example.
oil the start of spainting	
,	backewood so the box
	การไว้แมนของสมบัตรแนงสมบัตรและสามารถสมบัตรและสามาร์ได้ให้สามารีได้มีสามารถสมบัตรและสามารถสมบัตรและสามารถสมบัตร สามาร์ได้และสามารถสมบัตรและสามารถสมบัตรและสามาร์ได้ได้สามารีได้มีสามารถสมบัตรได้สามารถสมบัตรได้สามารถสมบัตรได้สา
	and up word
m's push t	re <u>provinter</u>



This candidate summarises the Law clearly, and is able to apply both the action and reaction elements accurately, achieving maximum marks.

3 marks



(3)

3 Using a sporting example, summarise Newton's Law of Action and Reaction. (3) This Law states LOC ever action exam an equa opposite reaction and An 15 a sprinter pushing his wo do the Meaning Samo QXQ N).



This candidate gains maximum marks. They summarise the Law clearly and are able to give an example with a clear action and reaction.

3 marks



Try to make examples straightforward and clear

Learn an example for each Law that you understand and can use

Knowledge of this area of the specification was strong, with many candidates able to articulate their understanding.

Most candidates were able to outline the process accurately.

Generally, terminology for this was well-known. Those candidates receiving lower marks sometimes confused terminology eg diaphragm relaxing or moving up, rather than contracting and moving down. Pressure gradients are not always well-explained.

4 Outline the mechanical process of inspiration at rest.

inspiring at rest the diaphragm will Moving downwards. The external inter-costal CONTRACE also contract pulling the rib car muscles will ating more room in the thoracic cavit space means cower pressure, this means From the environment can flow into Pressure air the long





(4)

The knowledge of how the oxygen was passed was weaker on this question. Some candidates thought incorrectly that the oxygen passed directly from the alveoli into the muscles, forgetting the path between. Knowledge of, and explanations of, pressure gradients or the structural path followed, was less common. Very few candidates explained diffusion of oxygen from the capillary into the muscle. Pressure gradients and haemoglobin were only referenced in the best answers.

5 Describe how oxygen is transferred from the alveoli to muscles at rest.

(4)

Oxygen concentration (pO2) is higher in the alveoli
than in the capillaries at the alveou. Therefore, oxygen
diffuses out of the alveou into the capillaries, tollowing
a concentration gradient. Oxygen is transported in
the blood by harmoglobin, which is found in the
red blood cells. The muscu cells have a lower poz
than the oxygenated blood. This causes axygen to
dissociate from the normaglobur and be receased
into the muscles.

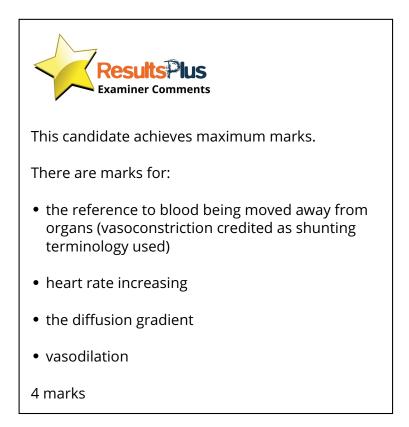


The most frequent answers referred to increased heart rate and breathing rate. There seemed to be a lack of knowledge of other factors, although those candidates achieving the best marks were able to refer to vasodilation and vasoconstriction. There was little knowledge of increased blood pressure.

6 Summarise how oxygen delivery to the working muscles increases during exercise.

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(4)
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Blood is shunted to the working Muscles from the organs. There is an increased oxygen uptake, meaning heart rate increases, so more blood can be pumped to the working muscles the diffusion gradient is made skeper, so that diffusion happens at a faster rate. As well, temperature increases this causes was diffusion, so a higher volume or blood reaches the muscles.



breathing rate increases, this sees more The Oxygen enter the Jungs grans therefore, there and ladeac se in stroke Volum an intra as note expoen is required in the muscles to support exercise. Thus, Good persure also increases as the on red Good alls carry my delation of the are The sailar Shurt mechanism de Then the Va allowing more obygen to the applaries, which Hanster Mis also and increase in venuous return me to the indusches. There. 4 Y Y Y as deliggenated blood returns quicker to the ' (Total for Question 6 = 4 marks) lung



This response achieves maximum marks, making clear and straightforward points.

This candidate gains marks for:

- increased breathing rate
- increased stroke volume (cardiac output is a repeat point in the mark scheme)
- blood pressure increase
- vascular shunting

4 marks

Candidates did not have a clear understanding of the differences between structural and functional adaptations. Too many candidates were talking about hypertrophy, which is a structural change.

Candidates were very familiar with the terms bradycardia, increased stroke volume and increased cardiac output, but need to be more familiar with other elements of the mark scheme.

7 Summarise the functional adaptations to the heart as a result of aerobic training.

Herebe maning is nomaximal and inlines derence respiranon. M
a result of reasoning me bean upenences myocarcleac superrepty
maning contractions more priceps. The hears a becomes more
density capulanced which means it can respute and conact
mare experency. The left venticle becomes nucleur for mene
praque vennaler mode. Uner renning hear rate occaro
and in since cases bradycardies where heart cate
is belan go bpm. The hear will have increased myoglichin
construct and higher nunochandra density for increased
aenable respirance. Liver blood pressure by increased order
voune, canarar apper, more appent at remaining ware
produces, higher resistance to fangue to work for langer laver due to ethalency of vecou resting heurs rate, faster recovery nine (Total for Question 7 = 6 marks)

(6)



This candidate begins with much irrelevant material referencing structural changes but does, in the end, comments on functional changes as well.

Marks are awarded for:

- lower resting heart rate (bradycardia)
- more forceful contractions
- increased stroke volume
- increased cardiac output
- faster recovery
- 5 marks



Bullet points would have made this answer clearer

Candidates may use bullet points in questions to ensure they have made six valid points

7 Summarise the functional adaptations to the heart as a result of aerobic training.

After a long term training programme the heart will experience cardiac hypertrophy which results in the heart beating more forcefully. This increase therefore an athletes stroke Volume, cardiac output, for end diastolic volume 3 end systolic volume. The athlete will experience a faster recovery rate after exercise and may also experience bradicardia (a hr under 60 bpm).



This answer achieved full marks: it was very straightforward and clear to mark.

Marks are awarded for:

- stroke volume
- cardiac output
- end diastolic volume all increasing
- faster recovery rate
- bradycardia
- greater force of contraction

6 marks

(6)

Those candidates who performed well on this question were able to approach both elements of the question. The excitation phase was less well-known, whereas more candidates were familiar with all the elements in the contraction phase.

Candidates need to recognise where questions have elements to them and focus their answer to the appropriate parts. Less-able candidates knew key words but applied them incorrectly. For example, some used an incorrect phrase such as 'tropomyosin binding with myosin'.

8 Outline the stages of excitation and contraction during a muscular contraction. (6)
DULING & MUSCULAR CONHACTION AN ACTION POLENTIAL ALLIURS AT & MODOL NEUROPE END
prave where cat long are released into memoriane of ventone causing resides
with the neuroriansmitter to be reveased. The neuroriansmitter, areity renation
to equip while a para bar and and and save and prove to the
receptos on salcopiason. This causes eat lons to be revesed down
t-hubles. The cat lons kind to kideonin on the actin filoment which
causes a change in anape of the horomyosin. This exposes the
myosia binding sites on the altin lingment. The myosia head is
altorned to an ALL morecure where its proomes unstable and pines to
was action filament vorming a cross dridge. The myosin pures
the altin filament a with a powerstroke movement. As the
myosin negd leverses fidd + pi is leversed.



8 Outline the stages of <u>excitation</u> and <u>contraction</u> during a muscular contraction.

Excitation - The impulse arrives at the motor end plates and
mores across the somewronuscular junchian, causing the release
of Calcium ions from the sorcoplasmic reticulum. There cat then
bind to Tropanin, of and disfigures it, causing Tropomyosic to ship
on the praction filament to incover the binding site for paryosin
head, where it atlatenes itsurf.
Contraction - The myosin head contains ATP, and as the peross
bridge prexes, ATP is used, allowing it the myosile head to mare
up the Acrin filament drawing the z lines closer pigether in
the solutionere. ADP is resynthesised to ATP and the movement -
the sorconnere. ADP is resynthesised to ATP and the movement - a power stroke is repeated. This is called a ratement wellowism



This candidate also achieves maximum marks, by ensuring that they cover both elements of the question.

6 marks

(6)

Those answers which were not so strong were not able to focus solely on the muscular system. Better performance came from those candidates who read the question carefully and were able to focus their answer on the muscular system.

Responses rarely followed on with any depth and detail. Key subject-specific terminology was lacking to substantiate the response and move the answer through the mark bands. The best answers were able to follow on with a link to performance, which meant that analysis could begin.

- (8)st Tr. an 2 contra \$ abre - 4 MUS He rel 0 respire J'WAR 30 oryge
- 9 Examine how the muscular system responds to a warm-up.

ans



This response gains maximum marks.

The answer focusses on the muscular system and contains technical terminology.

The candidate discusses many elements and then links the answer back to performance.

8 marks

The best answers were able to move beyond only the removal of lactate. There are many elements. Too many candidates are still referring to lactic acid, rather than lactate.

The slow component of recovery encompasses many elements and candidates needed to refer to a variety of issues. Stronger answers also substantiated why these processes happen and not just the processes themselves.

The slow component of post exercise excess congen
recovery is the lactuard component, meaning suffraent
luckite was acumatated dung ancerebre exercise
which now needs to be remared. The remaral y
lache acelis largely due to exidation, and therefore
requires large amounts y caygen above resting values,
therefore hormoner and temperature remain high though
falling, to help metaboliz rule, heart rule and
breathing rate high to accomodate for manared as
uphabe. Oxidation muches the lackabe they whereby
the process of glycelyss is revened, using ATP to convert
lackete back in to glucope. Removal y lacticated
also muctures bygenny, which is where the morearem
Ht izne are laten up to decreate the acidity. Here,
hvernoglobin kiter up the H+ rang lacter and
fime temperary hvernoglobinic acid to that
lackate levels in the blood are reduced. Gradually, as
this can take up to 2 hours for full receivery the
body is rehand to its resting these. This means
decreare m mercibilic rite, heart rite and
brouthing rule as the nead for 02 11 now at
rering level.



This answer achieves maximum marks.

It contains many elements and technical language.

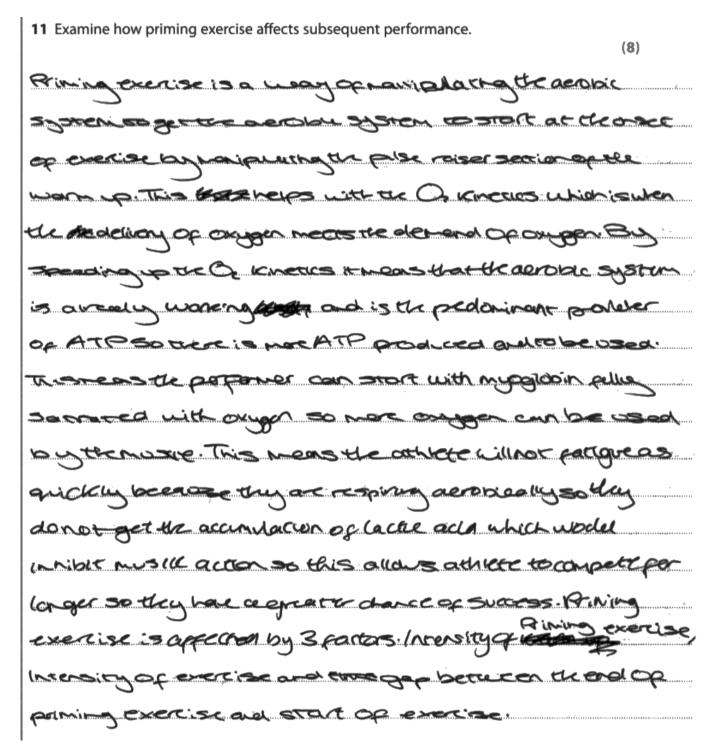
8 marks



Lactic Acid should now be referred to as lactate

Priming exercise was not well known. There was an obvious distinction between those candidates who had been taught this and those who had not, with many candidates leaving this question blank altogether.

Some candidates knew this referenced warming up but were not able to respond with any technical knowledge or understanding.





This is an excellent example of a sustained response, answering the question with clear technical knowledge.

It achieves maximum marks.

8 marks



Teachers should be using the topic guides and the *Inside Track* magazine to inform planning

There is no text book endorsed by the Principal examiner

The most basic responses were not able to link their answers to the cardiovascular system and simply repeated back the information given in the table. Most students could link the effects of obesity, smoking, diet, alcohol and lack of exercise to the CV system but very few went beyond just stating the physiological effects.

There was little evidence of analytical thinking or links made between the issues in the table. Knowledge of unhealthy lifestyles was strong. Candidates often wrote very lengthy responses, often with multiple extra pages added. These did not add to the quality of the responses, and, in most cases, simply involved repetition of the points already made.

Tip - the amount of space in the answer booklet, should indicate how much to write

- Tip structure answers in clear paragraphs
- Tip present a conclusion

Very few candidates were able to provide a technically-correct definition.

13 Define the term submaximal aerobic fitness.

(1)The ability to mainbain a high percentage of VO2 mean for a sublimed punce of time.





13 Define the term submaximal aerobic fitness.

(1)The ability to maintain a high percentage of Upmax for an extended percid of time **Examiner Comments** A correct definition, gaining one mark. 1 mark



Learn definitions - they give easy marks

This question was misinterpreted by some candidates who referred incorrectly to the adaptations derived from interval training, rather than the advantages of this method of training.

(4)

14 An athlete might use interval training to improve their aerobic fitness.

Outline the advantages of this type of interval training.

Acerchic interval training for a number of reasons. The
method is my cheap on it often does not require
require any specialist equipment which can be
expercise. The technique also does not depend on cots
of equipment or packetes rearing it can be done by nost
alletes and anythere. The acobic intered framing is
also may adoptable, making it can be applied and made
Specific to alrest on spor Ne ver requires. The inversion
is veriable so it can be applied eg. Low intersity and
Long duration internals to targel the acrossic energy system.



This response achieves maximum marks.

It references:

- versatility to different sports
- cheapness
- lack of equipment
- intensity being adjusted for the aerobic system

4 marks



Read the question carefully

Question 15 (a)

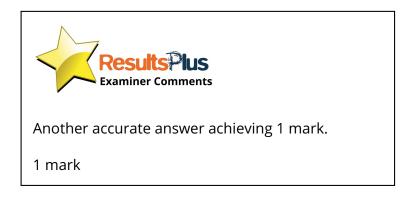
This question was answered well, with the majority of candidates knowing what 1RM is. Those who did not gain the mark were often not specific enough about it being a **singular** maximal effort.

15 (a) Define one repetition maximum. (1)(mascimi Force that can be largest "amou exerted e(ngle in one Examiner Comments An accurate definition, gaining 1 mark. 1 mark

15 (a) Define one repetition maximum.

(1)

One repetition maximum is the greatest amount of force you ca A concernation one muscle contraction



Question 15 (b)

Many answers focussed on 1RM as a fitness test, rather than as a method for calculating exercise intensity. The most frequent answer referred to the risk of injury but other points on the mark scheme were less well-known.

Candidates need to be taught about different ways to calculate the intensity of exercise.

(b) Describe **three** problems in using the one repetition maximum method to calculate the intensity of training.

3



This response achieves maximum marks and is set out for ease of marking.

3 marks



Set out answers clearly, so that you know you have made three distinct points for a 3-mark question.

(3)

Knowledge of the injuries was good, but the question was sometimes misinterpreted and explanations about how the injuries occurred were given, rather than describing the injuries themselves. For example, some candidates said a fracture was caused by a hard rugby tackle, rather than describing that it was a break in a bone. Sometimes not enough injuries were referenced.

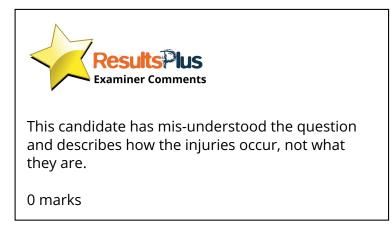
A four-mark question required knowledge of four injuries.

A common error was to confuse the terms 'strain' and 'sprain'.

16 Describe four acute injuries.

Acute are 001 brea. one ensir example of ger sta 0 occu cn 00 aS boxing an

(4)





Read the question carefully. Twice

Fracture Sprain Strain Risbarion

16 Describe four acute injuries.

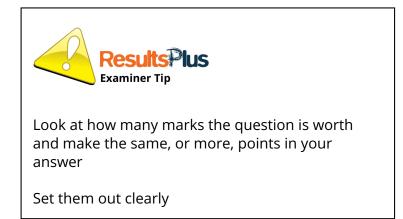
(4)

· Distocation - Whon the articularling bored care away trace each other (out of position in the joint) leading to a mis slopen wint and extreme pain · Fracture - The breaking of a bone (can be simple - within the skin or compand ard the skin) · Strain - Tears tom in the russle ribre causing parin and Kndemes: · Sprain - Tearing of a ligament resulting in rain and instability at a joint. In the knee commonly the cruciate Cigaments PACL, ML MICL, LCL)



This response is set out well and gives a clear description of each injury. A four-mark question and four good descriptions. Maximum marks awarded.

4 marks



16 Describe **four** acute injuries.

(4) - where a bone becomes displaced from Dislocation its joint. Fracture - Small crack or break na which can pierce He Skin or irternal A that of the achilles feder which carrieds the chilles terdan Calcaretts to the soleus. ¥ Thin) (Total for Question 16 = 4 marks)

Strain - teoring or pulling of a nucle.

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Another clearly set-out response, achieving maximum marks.

Those candidates who knew what this test was, gained marks easily. There was some inaccuracy of distances and times.

However, many candidates were not familiar with this test at all and did not attempt this question.

17 Describe the protocol for the RAST fitness test.

puàng a	(4)
1 Repeared anaerobic	Sprivet test is a cour set up
uf a 3 you run	a length of 35m six times
with 10 second rest	a length of 35m six times in between each rm. A pecon
times each For and	your speed, as well as a
	breaks to ensure correct amount
of Nest.	



This candidate knows the test and gives enough accurate detail for maximum marks.

4 marks

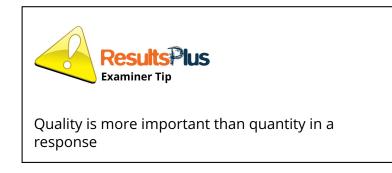


Candidates need to be familiar with every fitness test on the Specification

17 Describe the protocol for the RAST fitness test.

Repeated	eel Ar	nerobic	sprite	test. This	is wh	n a performer	
Sprines	for	35m	as f	ast as	they a	mywith a	11.1
. O. 1	Second	ant	in beeu	eer ead	sprint.	They repear	
this	6	times					1.11





(4)

The vast majority of candidates knew what POLICE was and was able to explain it.

Errors were more frequent with the term 'optimal loading', with some candidates confusing overload or progressive overload with optimal loading.

(5)

18 Outline POLICE as a strategy for recovery from injury.

Police usually used for injunar like soft tissue danage. Pu protection nu nude stopping activity so that he futher damage can be done. O+L U optimal coading has beg where once the unjured area challenging exerc to hear more coun De es. to regain strength used in order the injured area. 1 mobility in S the Leeps smelling and inflammation reduced. is conpression and stops rule ONSTRUCT of blood verselr. α a vasor for Question 18 = 5 marks) (Tota Elevation D keep uniu bac to reduce blood au to above h Davi area a Therefore ίuο



Candidates who received lower marks were able to talk about 'tucking up' or 'opening out' but not able to reference the technical terminology.

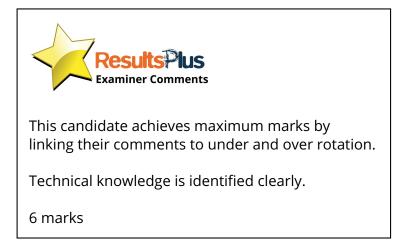
In better answers, 'over rotation' and 'under rotation' were explained and linked points were made with examples to support this.

Technical language was used such as 'moment of inertia' and 'angular velocity'. Answers needed to link explicitly either to over or to under rotation.

Some candidates only explained how to do a somersault but without linking it to over or under rotation.

19 When performing a somersault, an athlete may over or under-rotate. Using examples, explain how each of these can occur.

(6) Anglular nomentum = angular relation × noment as Norti ngular relocity is the speed of turning and Martin 15 the Ricking to morement. An attlete may over rotate when moment of mentia K decressed, which s angular velocity, and so the personner source this is based in the conservation of nonertain, where is increases, noment as inertia nould be decreased An example He stillede trings the body turked in during the so wereases relocity An attlate may under rotate when momental weaking decreases angular velocity, and so the performer does e harring their arms and An example is the att eas out du Somersout which dec (Total for Question 19 = 6 marks)



19 When performing a somersault, an athlete may over or under-rotate. Using examples, explain how each of these can occur.

	(6)
- Over rotation may occur if the athletes	limbs re
too close to this centre of mess for way	ple of hos
100 régliter préked. This decreases his moment of	metia unil
increases his angular velowity (monishin) causing him 1	o rolale
Laster.	
- Under robation may occur if the attilleties most	s is dishosuled
away how his care of ress for reaple agyme	yt ma
layour position. This increases his moment of in	hupia ad
+ Lirefor decreases his angular velocity and so he	sours
Slower.	



Setting out the response in two paragraphs helps to make the link clearer.

Very few candidates referred to how the magnus effect was caused, instead focussing on the spin on the ball. Many answers believed that the magnus effect caused the spin, rather than the spin itself changing pressures around the ball.

Some candidates had errors with where the high and low pressure were, getting them the wrong way around. Most candidates focussed only on top spin or back spin but were not always able to link to how this was useful for the performer.

Tip - diagrams are always acceptable if annotated accurately to support your answer. This is often useful in Biomechanics questions.

Most candidates were able to reference carbo-loading and therefore to score at least one mark.

Very few candidates were able to reference much beyond explanations of depletion and repletion of carbohydrate, or a high carb meal immediately before performance. The key part of the question was that this referenced pre-race and therefore references to during and after performance would not be credited.

Water seemed to be forgotten as a nutritional element by many candidates. Knowledge of the function of protein pre-race was not well known.

21 Explain how an athlete can manipulate their diet to prepare for a marathon run.
An attricte can curbo-load in preperation por a marathon to
movemile glycogen stores to increase the anount of time they
an run before faitiguing. mey can deplete autorydrate stores
and then compensate by intaking high volumes of carbohydrate
wich poods live posta to boost stored of glycogen in the murdes.
They can intake confleme which is a stimulant to give a small
boost in energy levels right before a marathan run.
The athlete would drink with of water to ensure they are well
hydrated and could prtenticely drink hypotonic arish, sofnic
drinks and hyperinic drinks to manage their love of hydration
and energy stores.



This response achieves maximum marks.

Linked points are used well to explain the dietary elements and why the athlete needs them.

Marks are given for:

- caffeine reducing fatigue
- carboloading to boost glycogen
- depletion and repletion
- water for optimal hydration
- sports drinks to boost energy
- 5 marks



In this 'explain' question, five linked points are needed

Candidates wrote most about heart rate monitors, pedometers, fit-bits and GPS trackers. Almost all candidates had a range of technology to bring to the discussion, but too much emphasis was placed on what they do, rather than their benefits to monitor exercise and performance.

Counter-arguments were not well-utilised to help access the highest band. More needed to be made of application and implications, rather than only a description of each example of technology.

22 Assess the use of wearable technology to monitor activity.

685

(8)

A GPS can be worn by amletes to track their
acceleration, aguilty, speed and contact. For example
a rugby player could hrear a CIPS on his shurt to
Unform NTS coach of his performance in certain areas,
his coach can men use this information to adopt
training sessions according to most one rugby player
reeds to more on Box An example could be most
the GPS Showed Oran acceleration of the nigby player
and therefore the coach focustes training on reaction
time and acceleration skills. News The GPS is usetu in
monitoring game activity which can then be used to adapt
training sessions. Moneter, It is expensive and meretate not
avaliable to all and also not also always accurate
A heart rate moniter is another type of warrable
technology- mis measures me hears rate of a performer.
This could be used on a long distance numer or
even a beginner who is training to monitor meur
progression of futness mis is a useful method of
measuring activity as it gives an idea of health
as well as performance and is useful in comparing to
results of other amiletes and previous results. Although, like
most weekable technology its expensive and also
a long process of getting set up.



This response achieves 7 marks.

The structure of this response is good.

There are two clear paragraphs with counterarguments presented for both.

7 marks



In an extended answer, is there a counterargument that you can use? Meant rate monitors can be worn by attileted its monitor their heart rates during their session, and acutately See whether mey're heart rate is meeting part of that target zone, if the heart rate isn't what they wonted it to be, they could then adopt their sessions to make them more appropriate

OP'S could be work on played sucr as nighty playes. This will track when the player moved and ther activity ouring the game. This would be benneticed as it could allow the player and coach to analyze the performance and produce new tacknes and strategies

Fil bits could be worn, this we there would here can measure the app could heart rate, therefore the be unked to a prove allowing tot

-quick and early companies on

All at these technologes allow up to months actually and so where improvements could be mode. Now at attiletes may not feel comportable wearing these and may test prij 2 cally nestricted, thereare their performance may decrease monthan normal, so it may not be an accurate representation of their performance ability. However, this technology allows he guick and easy monthang, and results could be recorded and compared to see if thours a dapathons have occured.



This answer achieves 7 marks.

It has some counter-arguments.

It also talks about why the technology is used and its application to performance.

Wearable technology can be seen as periometers or GPSports. Pedometers are vorn on a notif of an abbildele and can measure Que nimber of theps. The us of Quis technology can be tempical as to arbitrate about the abbilders veriae length and a can be well to mange a abbuters strike 16 is also useful as it allows about to measure on abbuters based 16 is also useful as it allows about to measure on abbuters based as go august which can help with parity of a race. Nonaelays more madern methodes ast can also monitor one adulates training cores and contrate alberts (autus to monitor one adulates training cores and contrate alberts have rates. They can also be negative basever as aboutees one contrate maternil here rates. They can also be negative basever as aboutees and containing become to reliants on on technology.

Another form a realable technology is cillipoils This is a perior of equipmuits that is placed an abolistic during spons events. Out This can be actual as at allow coalles to aisongueon are perent and storgills of a preformer. This can be liked in spons such as foospace and nighty insere abolistees can be monitored. It is also areful as it is a live to a live to and currents display of an abolistic and so can be minitored canity. It also belies coalling of an abolistic and so can be minitored canity. It also belies coalling of as body may have noticed a decrease in average yield.



This response achieves maximum marks.

It highlights how the information can be used by coaches and teams to monitor activity, rather than being a simple discussion about what the technology does.

There is also discussion of some negative aspects of using such devices.

The vast majority of candidates did not know the difference between oxygen tents and hyperbaric chambers and simply wrote about them as the same thing. There was very little in terms of discussion.

The most common negative centred around cost. This question is linked to recovery: only the best responses noticed this aspect of the question.

Question 24

Those candidates who scored highest were able to reference more than simply travel to the venue and hydration strategies. The full scope of the mark scheme was utilised by top-performingcandidates.

Some candidates focussed on the effects of exercise in hot conditions, rather than preparation strategies. The word 'climatisation' is being used incorrectly and candidates should refer to 'acclimatisation'.

There was confusion over reference to preparing for altitude, rather than for heat, in some responses. Often candidates lacked scientific detail to back up their suggested strategies. Very few candidates provided a comprehensive range of strategies. Analytical skills have been lacking in longer responses.

Tip - Does your extended answer show analysis?

Paper Summary

Based on their performance in this paper, candidates are offered the following advice:

- Structure responses with logical paragraphing to include introduction and conclusion. Candidates should try to be analytical in these responses, perhaps linking to a counter-argument
- Candidates should be access Pearson online resources to support their revision
- Key technical terminology should be referenced in answers
- The space available for writing should be enough: there is no need for extra sheets and longer answers. Writing of high quality is more important than the length of response
- Candidates must look at the number of marks available and the command word. The command word will tell you the type of response required
- Writing must be clear and legible. Centres need to check this is the case by practising timepressured writing before the examination season

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx

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