

Physical Education

Advanced GCE A2 7875

Advanced Subsidiary GCE AS 3875

Reports on the Units

January 2008

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

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Advanced Subsidiary GCE Physical Education (3875)

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Chief Examiner's Report To Centres

Entries for the January 2008 series of examinations were up slightly on previous years with 6700 candidates sitting AS papers and 2000 sitting A2 papers.

It is pleasing to note that Principal Examiners, once again, make reference to candidates who are well prepared by centres for these examinations. Whilst many candidates are taking the opportunity to re-sit their examinations there are also candidates who are sitting for the first time.

Principal Examiners make reference to the suitability, in some cases, of the January session for candidates to sit for the first time. This is referred to on the basis that the amount of content to be covered means that it is difficult for candidates to have the required knowledge and understanding to do well in the examination. Some centres perhaps need to review this strategy particularly as it would appear to be inappropriate for the new specification.

Other points referred to by Principal Examiners which, if centres and candidates took on board, would lead to improved performance include:

- The need for candidates to give practical examples.
- The need, particularly at AS, not to repeat parts of the question as their answer as this will not gain them marks.
- To ensure that where quality of language marks are available that they write in continuous prose and avoid the use of bullet point answers.
- An understanding of what the various command words used in questions indicate is needed in the response.
- Not answering questions on A2 papers on subject areas which they have not been taught.

Principal examiners also refer to the depth of knowledge of candidates and their understanding of this knowledge being evidenced by their ability to relate it to practical examples. There are therefore many candidates who do well as a result of good teaching and preparation by centres.

2562 The Application of Physiological and Psychological Knowledge to Improve Performance

General Comments

The pattern of performance by candidates at this sitting followed the trend of recent years, in that numerous candidates were clearly re-sitting the Unit in an attempt to improve on their summer 2007 result. There was however evidence of whole Centre entries in a number of cases and it is within such entries that the greatest mark distribution occurs. The demands on Centres to comprehensively cover two modules within a three month period of Advanced Subsidiary study is reflected most obviously at the lower end of the mark range, with weaker candidates having clearly struggled to grasp the more complex concepts in the limited time available.

The mark range across the whole cohort was from 1 to 55 out of the maximum total raw mark score of 60. As is often the case in the January sitting many candidates scored around the E grade boundary. It is however rewarding to view the work of candidates at the upper end of the mark spectrum, particularly as they demonstrate evidence of having clearly been well prepared by Centres.

As guidance for future examination entries the following comments may prove helpful.

- Candidates should offer the specific name of an exercise when required in Section A, as stated in the specification. Descriptions of how to complete an exercise are not credited with marks.
- Care should be taken by candidates to include quantitative descriptions of physiological functions rather than simply offering a functional description of a process eg 2b 'Increase in the oxygen diffusion gradient' rather than simply 'and this results in a diffusion gradient'.
- Abbreviation of terms should be avoided at Advanced Subsidiary level eg 2a(ii) IRV should be written as Inspiratory Reserve Volume.
- Candidates should ensure that they have determined whether the question relates to a performer at rest, during or post exercise before they attempt their response to any of the Anatomical questions.
- Repetition of terms within a question will not result in the awarding of marks.
- As has been stated in previous Reports to Centres, failure to include practical examples when required will result in candidates being unable to access potential marks.
- Repetition of comments previously made within a response will not elicit further marks for a candidate.

Question 1

(a)

(i) **Joint analysis table**

The average score for this question was three or four, with points one, two, three and five being most frequently awarded. Numerous candidates failed to identify the talus as one of the articulating bones of the ankle.

(ii) **Strengthening exercise for the rectus femoris and tibialis anterior muscles**

Identification of a strengthening exercise for the rectus femoris was generally well answered. However, weaker candidates were not able to accurately identify an exercise to strengthen the tibialis anterior, with many citing heel raises. A number of candidates described the process of performing the exercise as opposed to stating the actual exercise itself.

(iii) **Structure and role of a synovial joint**

Generally well answered.

(b) **Effects of cool down on the vascular system**

The more able candidates successfully identified that the question related to the vascular system and not the respiratory system or heart rate, as was often the case. It should be noted by candidates that descriptions relating to a cool down should stress the maintenance of the processes within the mark scheme eg 'maintains venous return' as opposed to simply describing that 'venous return occurs'.

(c) **Effect of size or direction of force on performance**

Candidates, on the whole were able to gain at least one mark for their exemplification of the impact of size or direction of force on performance. Clear and specific descriptions of the theoretical reasons for the effects were less accurate, although a substantial percentage of the cohorts were able to access both the marks on offer.

Question 2

(a)

(i) **Lung volumes**

A poorly answered question, with many candidates unable to identify the inspiratory and expiratory lung volumes labelled on the diagram.

(ii) **Tidal volume**

Whilst an appreciation of an increase in tidal volume was apparent by most candidates, even if perhaps in some cases only by luck, the description of tidal volume clearly illustrated a lack of knowledge of tidal volume itself. Numerous responses described tidal volume as 'the amount of air inspired and expired each breath', 'or the amount of air inspired each minute'.

(b) Explanation of the movement of the dissociation curve

This particular question proved to be the most challenging for all but the very able candidates, with considerable evidence of a lack of knowledge. It was also apparent in many instances that Centres had not adequately covered this aspect of the specification. Of the few high quality responses encountered the following can be viewed as examples of good practice;

Point 1 – ‘the increased body temperature during exercise causes a shift in the curve’

Point 2 – ‘this is because during exercise the partial pressure of oxygen in the muscles is decreased from that at rest’.

Point 3 – ‘the decrease in the PPO₂ in the muscles creates an increase in the O₂ diffusion gradient’

(c) Intrinsic control effects on the cardiac output

Failure to extract the correct information from the question resulted in incorrect answers for many candidates. Copious detail was given on numerous occasions to describe all the receptor systems of the body, whilst others described neural regulation as opposed to intrinsic control. The following candidate response illustrates the calibre of answer produced to achieve maximum marks;

‘During exercise venous return is increased. As a result it means that there is a greater end diastolic volume. This therefore results in an increase in stroke volume, which contributes to there being greater cardiac output. A second intrinsic control is an increase in temperature during exercise, which means that nerve transmissions travel to the heart at a faster rate.’

(d) Control of the cardiac cycle by the conduction system

Generally well answered, with many candidates gaining maximum marks, particularly in the identification of ‘the bundle of His’ and the ‘Purkinje Fibres’, the unusual nature of such terms clearly allowing for easier recall.

Question 3

(a)

(i) Characteristics of skilful performance

Many candidates gained maximum marks for this question. However, there were still the inevitable careless mistakes with some candidates using the two terms of fluent and following a technical model from the question in their answer, or failing to use a practical example to illustrate one of the characteristics.

(ii) Open skill explanation

Most candidates scored either one or two marks, with very few candidates gaining the maximum marks available. The most frequently cited explanation of an open skill being the fact that it is affected by the environment. Several responses explained the fact that open skills are externally paced but only a few candidates were able to go on to explain that the effects of the environment would cause a performer to adapt the skill to suit the changes around them.

(b)

(i) Selective attention and the importance to the short term memory

A sub max of two was evident in many cases for this question, with points one and three being the most frequently visited. The filtering process of selective attention was only

described in a few cases, as was the specific detail relating to the limitations in capacity of the STM covered in point 4.

(ii) Retention and retrieval of information from the long term memory

A well answered question, with numerous candidates gaining the maximum number of marks available

(c) Psychological refractory period

Responses ranged from clear and applied explanations of this theory to vague and inappropriate references to reaction time. There were frequent referrals to point five on the mark scheme, but only the better candidates offered clear explanations of the significance of, and the reasons for, this delay in processing information. Many candidates simply stated that the PRP was the time between two stimuli. An example of a clear and specific candidate response can be seen below.

'When playing football the goalkeeper sees a forward running towards the goal, this is stimulus 1. So the goal keeper goes to cover the likely shot on goal from the striker, this is reaction 1. However, when the striker has hit the ball and the goalkeeper goes to save it, the ball hits an uneven part of the pitch and deflects towards the goal in the opposite direction than was intended, this is stimulus 2. The goal keeper tries to change his action, this is reaction 2, but because the brain can only deal with one stimulus at a time there is a delay in his second reaction caused by the psychological refractory period.'

Question 4

(a) Explain intrinsic and extrinsic feedback

Points three and four on the mark scheme, relating to extrinsic feedback were generally well handled, with both appropriate explanations of extrinsic feedback and suitably applied examples. Intrinsic feedback was less successfully handled in several cases, with candidates simply suggesting that intrinsic feedback 'comes from the performer'. A well structured response to this question can be seen in the example below; 'Intrinsic feedback is kinaesthetic feedback from within the performer. An example would be when a golfer plays a shot but knows from his kinaesthetic feedback that the ball has been hit badly'

(b) Explanation of the inverted U theory of arousal

Point four, explained through a practical example, was the most frequently occurring comment. Many candidates confused moderate arousal with optimum arousal and thereby failed to gain point three on the mark scheme. Points one and two were usually explained together but featured much less frequently than point four.

(c)

(i) Motor programme

A very straight forward question proved to be particularly difficult for a number of candidates, with weak explanations of point one. As a general observation only points one, two and five were utilised in the vast majority of cases.

(ii) Open loop motor control

A substantial number of candidates were able to offer an appropriate example and appreciated the significance of the speed of the action as a major influence of motor control and thereby gained two of the three marks available on the mark scheme.

However, the third mark proved to be more elusive in the vast majority of cases. The focus for point three was often that feedback is not available, as opposed to the fact that feedback is available but the speed of the action renders it useless during the skill itself

(iii) Schema theory

The introduction of half of schema theory appeared for many candidates the trigger needed for an accurate and applied response. However, inevitably with this aspect of the specification, there were countless examples of inaccurate explanations and despite frequent references in previous Reports to Centres of the need to include practical examples, there were considerable instances where candidates failed to offer an applied response.

(iv) A reasonably well answered question

2563 Contemporary Studies In Physical Education

General Comments

Many centres are clearly preparing candidates very well for this paper, in terms of both knowledge and understanding and efficient and effective examination technique. There is limited evidence, however, of centres where parts of the specification appear not to have been covered and/or where parts of a previous specification are still being taught eg football in Brazil or badminton in Indonesia.

Overall, candidates were clear about what was being asked and the paper proved to be accessible. In the majority of cases they responded correctly to the command words, which is clearly essential for optimum performance. If candidates just identify when asked to explain (or develop) their points they are unable achieve maximum marks. This was particularly the case in Questions 1 (b) (ii) '**Give reasons why sporting success is good for emergent countries such as Kenya and explain how sporting success is achieved.**' (where bullet point one word answers could not 'score') and Qu 2 (c) '**Explain the causes of violent behaviour by both players and spectators in high level sport.**' (where a levels of response mark scheme was used and where candidates who developed their explanations gained higher credit than those who simply listed reasons such as '**alcohol**' or '**media hype**'). Question 1 'commands' (in order) were: **Identify; Give reasons for...; Identify and Give reasons for....** In question 2 they were: **What is meant by..., Account for..., How can..., What does..., What are... and Explain.**

In terms of Quality of Language (QOL), many candidates scored 3/3, most achieved 2/3 while those who wrote in bullet points throughout limited themselves to 1 of 3 marks for QOL. Candidates were not short of time.

Comments on Individual Questions

Q No) 1

(a) (i) **Identify three characteristics of play, outdoor education and sport. (9)**

*This opening question set a large percentage of candidates off with at least 6/ 9 marks as it required straightforward recall of key words from a central part of the specification. Characteristics of **play** and **sport** were answered very well with a large number of sub maxes achieved (3/3). Characteristics of Outdoor Education were less well known and understood, with many candidates giving values or benefits of the concept rather than **characteristics** such as **specialist staff required/part of national curriculum (pt 10); risk and safety/real or perceived risk/sense of adventure (pt 12); unpredictable (pt 13); natural environment (pt 14)**. Weaker candidates should be reminded that they will not be given credit of vague answers such as '**anywhere**' instead of **boundaries decided by participant/no set space (pt 5); or 'no rules' instead of flexible or relaxes or few rules or rules by agreement (pt 8)**. On this question the instructions clearly stated that candidates should 'write a **different answer on each of the lines**' and with this in mind, only the first attempt on each line was marked.*

- (a) (ii) **Give reasons for differences in the quality of Physical Education between schools. (4)**

This was a well answered question. with the most popular responses being **quality or number of staff** (pt 2); **quality or access to facilities or equipment** (pt 3) and **the presence or absence of extra curricular opportunities** (pt 8). Note that reference to **funding** on its own did not score a mark – it was necessary to develop the ‘funding’ point into what funding could access.

- (b) (i) **Identify two further characteristics of ethnic sports in the UK other than tourism and isolation. (2)**

As in Qu 1 (a) (i), only the first attempt on each line was considered. Candidates were clearly asked to identify **two** characteristics. A large number of candidates achieved 2/2 from this popular recall question (which is from a well-liked part of the specification) with all points on the mark scheme being regularly achieved. Though the **rural** natures of ethnic sports is clearly a characteristic, this feature did not appear on the mark scheme as it is too similar to ‘isolation’ which was given to candidates in the introduction.

- (b) (iii) **Give reasons why sporting success is good for emergent countries such as Kenya and explain how sporting success is achieved. (6)**

This question was a good differentiator. It had a relatively large number of marks available (6) and had two clear parts, both of which had to be addressed. Marks achieved ranged, in the main, from 2-6. As already mentioned, key words alone were not usually sufficient to gain marks here (role models (pt 9) being an exception). So the (relatively small number of) candidates who simply listed: **stability, health, nation building, appeasement, integration, defence** would not have achieved any marks. A little more explanation/context was generally needed as is clear from the mark scheme. Similarly, if candidates simply wrote **high profile/low technology** they did not score, as they needed to explain that these types of sports are **chosen** or **focussed on** in countries such as Kenya.

Q No) 2

- (a) (i) **What is meant by each of the following:
Discrimination
Stereotype
A special interest group? (3)**

This short question also proved to be quite an effective differentiator, due to candidates’ knowledge and quality of expression. It is acknowledged that a clear and succinct ‘definition’ of sociological terms is demanding at AS level. The mark scheme shows that quite a wide range of answers were acceptable. A simple explanation of **discrimination** is **unfair treatment**. Note that a relevant example of unfair treatment also gained credit here. A **stereotype** is a **simplified or standardised image or view** – and again a relevant **sporting** example of this was acceptable. In the main, candidates did not know that a special interest group (as identified in the specification) is **an organisation such as the WSF that encourages participation by certain minority groups such as people with disabilities**. The majority suggested (incorrectly) that a minority group was the target group itself, such as women or the elderly.

- (a) (ii) **Account for comparatively low levels of participation in physical recreation and sport by people on low incomes. (3)**

As this question had 8 points for 3 marks, candidates were able to do well, working out that income levels effect an individuals ability to pay for **entrance fees** (pt 1); **equipment** (pt 2); **transport** (pt 4). The next most popular answer was **lack of time** (pt 6). As is the case with such questions on discrimination and minority groups, if candidates are aware of and refer to the details connected with '**opportunity, provision and esteem**' they are very well placed to score a max.

- (a) (iii) **How can school Physical Education departments increase the interest and participation of girls in physical activity? (4)**

This specific question has not been asked before yet candidates did well with the most popular answers being that girls could be offered **choice** (pt 2), **role models** (pt 3); **extra-curricular opportunities** (pt 10) and '**girl only**' **sessions or activities** (pt 11). On this question some candidates expanded at great length on just one or two points, thereby restricting their scores. As a very general rule, two lines on the answer booklet are given for each mark available.

- (b) (i) **What does the Women's Sport Foundation do to increase participation by girls and women? (2)**

A less popular area of knowledge where only a small majority scored the max of 2/2. Those who did score a max mentioned most often that the WSF **promotes equality** (pt 1); **organises campaigns** (pt 2); and **raises the profile of role models** (pt 5). It might be worth noting that the WSF does not: '**provide**' role models

- (b) (ii) **What are Sport England's main objectives and how does it attempt to achieve them? (3)**

Again, the organisation and administration of sport in the UK is a less popular area of the specification, yet being almost purely recall, some candidates scored 3/3 here. The most popular answers were: **increase participation** (pt 1); **more people, more places, more medals** (which has been updated to '**start, stay and succeed**') – (pt 2) and **provision of funding** (pt 5). The significant minority of candidates who achieved no marks on the WSF or Sport England questions arguably sacrificed one to two grades on the paper overall.

(c) **Explain the cause of violent behaviour by both players and spectators in high level sport. (6)**

Candidates enjoy this subject/area of work and some did particularly well here. This question also proved to be an excellent differentiator.

The key to success was to:

- address both parts of the question.
- make it clear to the examiner whether players or spectators were the focus.
- consider quality (even more than) quantity of points made.
- give a well reasoned, well ordered developmental explanation.
- offer regular, solid examples of points made eg evidence of a player who shows gamesmanship or how a particular newspaper can hype up certain 'derby' matches.
- write in clear, concise, continuous prose – bullet point answers with no development would have scored 1 or 2 from 6 here.

Examples of candidate responses:

The following candidate achieved (Level 1) 2 marks:

Causes for players' bad behaviour can be due to disagreement on officials' decisions, the importance of the final score. The media pre-match hype can get the player worked up too.

Causes of spectators bad behaviour can be due to having too much alcohol, over-excitement from pre-match hype, rivalry between teams and importance of result. They disagree with officials decisions.

While the answer is written clearly with two distinct paragraphs, the points are generally descriptive and lack explanation/development.

The following candidate achieved (Level 2) 3 marks:

Causes of violence by players:

- ***importance of result – how important the result is in terms of the season.***
- ***sledging. Players insulting one another through abusive language.***
- ***nature of the game. What has happened during the game eg bad tackle, decisions by referee.***
- ***crowd behaviour – violence in the crowd influences violence by the players.***

Causes of violence by spectators:

- ***alcohol. Alcohol promotes bad behaviour.***
- ***perimeter fencing. Spectators do not like to be restrained. Fencing may promote violence.***
- ***Referee's decision. a bad decision by the referee promotes hostile behaviour.***
- ***tradition. Teams who play against each other with a history of violence may promote this sort of behaviour by the spectators.***

This answer is also laid out clearly – but written in bullet points, which is not recommended, especially for questions with 'explain' as the command. A few points were clearly developed, but not particularly strongly.

The following candidate achieved (Level 3) 5 marks.

The causes of violent behaviour by players could be due to the importance of the game – how important it is for them to win – or the ‘win at all costs’ ethic. Another reason could be decisions made by the match officials which may appear to be unfair or wrong. The nature of the game could be rough, for example in rugby or ice hockey which would also add to the chances of potential violence. Another reason could be the pressure put on players by coaches, friends or team members to win.

Violence caused by spectators could be caused by pre-match hype by newspapers about who will win and what they score will be. Another reason is the amount of alcohol consumed by the spectators; this may cause them to be more argumentative and to lose their inhibitions. Traditional rivalry between the two teams is also a significant factor. The referee’s decisions may cause spectators to become frustrated. Some crowd violence is by organised gangs who are there to cause trouble not to watch the match.

This answer is very good with several (though not all) points being well explained. It is also well balanced with both parts having been equally addressed. Hitting a couple of the more obscure points such as **lack of suitable punishment or deterrent** (pt 4); **games that involved kit of equipment that ‘de-humanises’ opponents or officials protects them** (pt 8); **over crowding** (pt 15); **organised violence** (pt 16); **mass culture or diminished responsibility in the crowd** (pt 17) would have got this candidate to a max of 6/6

2565 Physical Education: Historical, Comparative, Biomechanical and Sport Psychology Options

General Comments

Candidates are expected to cover at least two of the optional areas of study, one being from Section A, either the Historical or Comparative topic. 3 marks are available for quality of written communication in Section A, where answers require a piece of extended writing.

The History and Psychology questions, once again, proved most popular with more centres offering Comparative but very few covering the Biomechanics option.

Candidates generally prepare their responses to answers in Section A more thoroughly but this time the Quality of Language mark for the first time failed to show an improvement. The use of paragraphs and the fluency of planned responses will certainly help the students' ability to score well. There were, however, a significant number of candidates who used bullet points to answer the questions in Section A and this often meant no Quality of Language mark was awarded.

Candidates must develop their examination technique and respond appropriately to the command word in the question. 'Bullet point' answers are acceptable when the question states, for example, 'Identify four factors ...' Where a question seeks an explanation or requires a discussion and there are five or more marks on offer, developed answers are needed.

Comments on Individual Questions

1 Historical Studies in Physical Education

- (a)(i) This question was very well answered with candidates often securing a 'max'; points 1, 2 and 3 were regularly offered.
- (a)(ii) This was also well answered with better prepared candidates not only structuring their answers well but providing additional information as to the impact that changing factors had. All points from the mark scheme were identified.
- (b)(i) Candidates often struggled to develop their answers in respect of 'Track and Field' athletics. Apart from 'improved facilities', only the very well prepared candidates were able to identify the exclusion clause and hence the 'amateur/professional' divide which existed.
- (b)(ii) 'Hare and Hounds' was often adequately described; the level of description for 'Steeplechase, Cross Country' and 'Sports Day', however, was often inadequate. Simply identifying the form of athletics in nineteenth century public schools was insufficient as the question required candidates to 'identify **and** describe'.
- (b)(iii) This question was an excellent differentiator. Weaker candidates described the history of the sport by referring to 'footmen', 'wagering' and the earning potential of participants. Only the better candidates were able to explain the growth and popularity of pedestrianism, identifying key features such as examples of walkers and the impact of corruption in the sport.

- (c) This was very poorly answered as candidates focussed, almost fanatically, on the military nature of the 1902 course without answering the question. They often, therefore, only picked up point 6 in the mark scheme, and it was the better prepared candidates who applied their knowledge of the topic and could access points 1-5.

2 Comparative Studies in Physical Education

- (a)(i) Most candidates scored well and many achieved maximum marks. Colonial influences, beating of the 'motherland' and temperate climate were frequently offered. Points across the mark scheme were seen, however.
- (a)(ii) The AIS was well known and candidates, again, scored well accessing marks across the mark scheme.
- (b)(i) It was pleasing to see a question from the specification on France being answered well. Often, in the past, candidates have written all they know about the country but the succinctness of the responses on mass participation showed that candidates were well prepared and knowledgeable. Often a 'max' was achieved as points 1, 3, 4, 5 and 6 were regularly identified.
- (b)(ii) Again, the French question was well answered with improvements in teacher training often identified. Better students achieved a 'max' with responses coming from across the points in the mark scheme.
- (c) This levels marked question proved an ideal differentiator with weaker candidates merely focussing on many of the benefits of attending a summer camp, often only listing them or describing them in a superficial way. Those at 'level 3' understood the capitalist nature of the way summer camps are set up and were able to identify the different summer camp experiences and relate this to the socio-economic system.

3 Biomechanical Factors Involved in Human Movement

- (a) Candidates remain weak in drawing force diagrams. Candidates either scored both marks or none at all.
- (b) Well prepared candidates reflected their understanding of the effect of a follow through by often securing a 'max'. All points on the mark scheme were regularly accessed with weaker candidates usually only able to identify 'increased speed' as an effect.
- (c) Top spin and back spin were almost always identified but side spin was less often seen. Weaker candidates failed to describe the effect of each of these types of spin on the flight path whereas strong candidates often secured a 'max'.
- (d) This levels marked questions once again proved to be an effective differentiator as strong candidates secured good marks with an accurately drawn air flow diagram which supported their explanation. Weaker candidates, whilst often effectively describing the Magnus Effect, were weak in their explanation and could not provide an accurate diagram.
- (e) Once again, force diagrams prove to be troublesome for weaker candidates only many were able to show the parallelogram for eii) on the resultant force diagram. The well prepared candidates showed 'Direction of Motion' and accurately placed the force arrows.

4 Psychology of Sport Performance

- (a)** Candidates often secured a 'max' with points 3, 5, 6 and 7 regularly mentioned. A minority of candidates answered the question with all the opposite responses.
- (b)** Factors affecting the formation and development of a team were not easily identified by candidates. Group identity, common goals, social cohesion and the sharing of similar norms were the most frequently occurring responses.
- (c)** It has quite often been the case, in the past, that a named psychologist's work has been poorly understood and answers relating to their work not been well addressed. Vealey was no exception this year. There was a great deal of 'general' speculation about confidence with all but the very best candidates even able to distinguish between state and trait sports confidence.
- (d)(i)** The answers to this question were surprisingly straightforward and in previous years, candidates would have scored very well. The requirement to, not only provide a suitable practical example but to explain factors that make the setting of goals effective proved very difficult. Many did not appreciate that the 'SMARTER' principles were needed.
- (d)(ii)** Many candidates were unable to adequately distinguish between the three types of goals. Few candidates actually offered any response to 'how goals could be used to improve performance' preferring to focus on vague definitions of the three types.

2566 Exercise and Sport Physiology and the Integration of Knowledge of Principles and Concepts Across Different Areas of Physical Education

General Comments

Many of the candidates are generally well prepared and show good planning in their answers. A significant minority, however, seemed to be ill prepared for this paper. Some for example answered the synoptic socio-cultural questions but showed little knowledge of Exercise Physiology for the compulsory question. Some centres may be front-loading the socio-cultural topics to be covered over the autumn term but this has negative implications for this paper because of the required knowledge and understanding of Exercise Physiology. Some candidates did reasonably well on the compulsory question but showed poor responses to the synoptic question. The better candidates showed excellent examination technique and planned their answers well. Effective synoptic strategies included a short plan, followed by a detailed and fluent response that linked information well and included appropriate technical vocabulary.

Some candidates were outstanding, especially when responding to the physiological questions.

Some candidates are still writing too much irrelevant material in the synoptic part of the paper. For example including irrelevant information in the Historical question that had little or no relevance to the requirements of the question. In Physiological questions some candidates felt it necessary to write 'all they know about' the anatomy of the arms and legs in response to the Anatomy and Physiology question related to force and motion. Other candidates showed a high level of understanding of the topic area chosen in their synoptic response. It is heartening to see such in-depth knowledge not only of the subject matter but also of how theory relates to practice.

Candidates are given credit for making relevant links within and between topic areas in the synoptic question, but some candidates continue to waste time writing material for which they will gain little credit. The best candidates linked relevant material to other aspects within and between topic areas. For example excellent links were explained well between excellence in sport today and the characteristics of late 19th century public school sport. The better candidates also continued to use appropriate technical and specialist vocabulary, which is necessary to gain high synoptic credit marks. The most popular route taken in the synoptic section of the paper, by far was from anatomy and physiology to exercise and sport physiology with the rest going for either the skill and the psychology or the contemporary issues and the history. Very few attempted the comparative question and even fewer the biomechanics question. There is some evidence in this session that some candidates answered questions in topic areas that they had not covered in class, for example most of the candidates in a centre attempted the Anatomy and Physiology and Exercise Physiology questions but one or two went for another route and scored very low marks, even though they had scored well on the compulsory question. Centres should remind candidates only to answer questions in areas that they have been taught.

Comments on Individual Questions

Section A

Sport and Exercise Physiology

- 1 (a)(i) Some candidates failed to name an energy system and therefore examiners could not give credit for their answer. Most named the ATP/PC system and correctly identified fuel used, the site of the reaction and the controlling enzyme. Those that did less well had particular problems relating the correct controlling enzyme to the appropriate energy system.
- (ii) The graphs that were sketched on the whole showed a good understanding of the relationship between energy supplied and time, and showed the relative predominance for each of the energy systems. Some candidates mixed up the axes of their graphs and others failed to label their graphs. Candidates are reminded to make their graphs clear and to label them fully to score full marks.
- (b) Most candidates recognised the appropriate ergogenic aid is carbohydrate loading. The best candidates described well that exhaustive training is undertaken which is then tapered and then 4-7 days before competition performers eat a low carbohydrate diet, followed by a high carbohydrate diet within three days of the competition/event. The less able candidates showed no understanding of the time factors involved. Advantages of carbo-loading were identified appropriately by many candidates with most stating that this method is relatively safe and legal amend that it increases glycogen stores which in turn increases endurance potential and reduces recovery time. Some candidates identified inappropriate methods with blood doping being the favourite of these.
- (c) This question proved to be the most discriminatory of this compulsory section. The best candidates explained well the reasons for the apparent physiological adaptations and included examples both from the heart and the vascular system. The less able gave little relevant information and some strayed from the question and gave explanation of other adaptations that were neither heart or vascular.

Section B

Scientific focus question

Part 1

(a) Application of anatomical and physiological knowledge to improve performance

This was one of the most popular questions and most then went on to answer the exercise and sport physiology question. Many candidates correctly sketched the figure and identified the force travelling upwards with the most able showing the force travelling through the body/centre of mass. A significant minority of candidates incorrectly showed the force incorrectly travelling downwards. Many stated that this showed linear motion and gave good examples, for example from downhill skiing. Most candidates showed an accurate recall of Newton's Laws with the better able candidates able to relate these well to the vertical jump. Centres should be congratulated on the way in which they are preparing their candidates for questions on force with answers this year showing a real improvement in candidates' understanding and application of force-related theories. Some candidates got carried away and related the laws to all sorts of other sports examples which certainly showed a good understanding of their application, but unless they also included applications to the vertical jump as required by the question, they scored few marks. Many however covered all bases and gave a comprehensive and well-applied answer.

The explanations relating to heart regulation often showed only a superficial understanding with many only referring to neural control and not hormonal or intrinsic control. Some well-prepared candidates scored very well and explained well the roles of the cardiac control centre, chemoreceptors, proprioceptors, baroreceptors as well as the influences of adrenaline and nor adrenaline. The best candidates also recognised links between the material in this question and the exercise physiology question, for example linking heart rate control to recovery.

(b) Acquiring and Performing Movement Skills

The route from skill to sports psychology was not so popular in this session as it has been in the past. Those that attempted this question were rather polarised in their levels of success. The most able gave comprehensive answer that was detailed and often related theory to practice. The least able again fell into the trap of writing irrelevant material and simply listing elements of skills and skill learning that bore little resemblance to the requirements of the question.

The explanations of the two continua asked for in the question were on the whole poorly done. Many students did not know what simple/complex and high/low organisation meant and relied on other classifications to try to gain marks, which was unsuccessful. The best candidates recognised that the simple/complex continuum related to the amount of information that needed to be processed and the high/low organisation related to whether the skill could be broken down into sub-routines. These candidates also gave relevant and detailed practical examples such as a sprint start for a simple skill and the leg action in cycling as a highly organised skill.

Again the next part proved to be difficult for many candidates with many not describing the innate nature of abilities. The most able responded with sound descriptions and relevant examples that helped them gain synoptic credit.

Most candidates could recognise the characteristics of intrinsic and extrinsic motivation and the better candidates then went on to explain how different motivational methods can promote effective motor skill learning. The best candidates often explained that extrinsic methods could be counter-productive by replacing positive intrinsic enjoyment of the activity and resulting for example in loss of persistence. Again a high level of synoptic credit was gained through the use of good practical examples directly from skill learning and the use of relevant technical vocabulary.

Part 2

(c) Exercise and Sport Physiology

The highest scoring synoptic answers for this section followed the section on anatomy and physiology because relevant links are more easily made. Most candidates could identify, define and give an appropriate method of evaluation for two components of fitness. Some candidates used aerobic capacity, strength and flexibility even though it was explicitly stated in the question to identify components other than these. Many candidates also gave examples in sport when these components are important and gained valuable synoptic credit. The terms related to periodisation are well known and centres have prepared most candidates well for such a question but many candidates did not answer the whole question and failed to include a discussion about the benefits of periodisation in planning a training programme. Others gave a definition for each term of periodisation but did not describe each thoroughly and therefore scored fewer marks. The best traced a training programme using each term with relevant examples and detailed the benefits along with

the benefits of tapering training to achieve maximum energy stores. Excellent synoptic credit was gained when candidates linked material with physiological adaptations and ergogenic aids such as carbo-loading.

(d) Biomechanical Analysis of Human Movement

Very few candidates answered this question. Some candidates who chose this section were well prepared by centres and used appropriate technical language throughout. Weaker candidates were largely superficial in their responses and did not use the appropriate technical language, which is necessary for high synoptic scoring. Most candidates identified the axes of rotation correctly and many used appropriate sports examples in their answer for example longitudinal was exemplified by some through a spinning skater. Candidates were less sure about angular analogues of Newton's Laws of Motion. The best candidates linked Newton's First Law with constant angular momentum unless acted upon by an external moment of force and Newton's Second with the rate of change of angular momentum experienced is proportional to the size of the moment of force acting upon it. These candidates made good links with their A&P answer and achieved synoptic credit.

Many candidates also found the Law of Conservation of Angular Momentum a bridge too far and some did not even attempt this significant part of the question. The better candidates not only attempted this but also scored well by using appropriate vocabulary and giving good practical examples throughout.

(e) Psychology of Sport Performance

The majority of candidates who answered this question had answered the acquisition of skill question in part one and many scored relevant synoptic credit for linking psychological material with acquisition of skill material. Some effectively used a diagram to outline Weiner's attributional model, others described the important elements of the model including the internal and external locus of causality and the stable/unstable dimension. The better candidates then went on to describe the model in terms of these dimensions. These better candidates show that environmental and dispositional factors can be used as attributions and these can interact with relative stability factors.

Many candidates did not then apply attribution theory to motivation in sport. The more successful candidates linked de-motivation and learned helplessness with attributing outcomes to internal stable factors. They then went on to identify that if there is a successful outcome.

Most candidates scored some marks for their responses involving describing and explaining the zone of optimal functioning. The candidates who scored few marks simply related being 'in the zone' to concentration rather than expanding on their answer and explaining that this is essentially an affective response that involves the performer having an positive emotional reaction to a successful experience. The best candidates linked this to appropriate levels of arousal and attentional control. The most successful links were made with motor programme theory from AS material and with self-efficacy from A2 material.

Question 3 (socio-cultural focus)

Part 1

(a) Contemporary Studies in Physical Education

This was a popular question this session and on the whole candidates performed well showing good knowledge and understanding of the three concepts of play, physical recreation and sport. The least able candidates gave superficial descriptions of the characteristics of these concepts but explored little the values associated with each. Candidates are reminded to ensure that they answer fully all aspects of the question and to look for the key words in the question: in this case explain; characteristics and associated values. Very few outlined successfully the concept of the continuum, although most could describe mass participation and sporting excellence. Centres are urged to go beyond teaching simply the descriptive characteristics of concepts in this topic area of the specification and to encourage candidates to look for and explain underlying cultural values that may affect different levels of participation. The best candidates actually did this very well and went beyond the listing of parrot-learned phrases and showed that they understood the relevance of certain features and the cultural values that they might reflect. The most successful also showed a range of vocabulary and the ability to link their material with relevant practical examples and also some attempts at linking excellence in sport with the excellence shown and nurtured in late 19th century public schools.

Part 2

(a) Historical Studies in Physical Education

Most candidates who answered the socio-cultural question then went on to answer this historical question. Some candidates were unable to select from their previously learned material on public schools the material relevant to the question. Too many went into a long description of general features of public schools some of which were early characteristics that had little to do with the requirements of this question. The better candidates continued to explain the characteristics related to opportunities and other relevant factors for sporting excellence. The best candidates recognised the importance of inter-house and inter-school games, the influences of the masters and the employment of professionals as well as the reforming headmasters at that time. These good candidates also linked their material well with sports excellence today and gave relevant examples throughout. These candidates had been prepared well by their centres and typically showed a short plan that was developed into a coherent, succinct and fluent piece of extended writing.

(b) Comparative Studies in Physical Education

Fewer candidates attempted this question in this section. Many of those that did attempt this question scored particularly well in the first part of the question related to High Schools and colleges in the USA. Most described the features of these educational institutions and the more able linked these well with preparation for professional sport. The most able also linked this information well with professional sport in the UK as well as Australia and France. Most recognised the influence of the Lombardian 'win ethic' and the high degree of commercialism that is a feature of sport in schools and colleges.

Candidates generally scored less well when comparing the United Kingdom Sports Institute (UKSI) with either the Institute of Sport in France (INSEP) or the Australian Institute of Sport (AIS). Many candidates did not compare but merely gave a description of either the French or the Australian organisations. Most candidates even displayed only superficial knowledge of these organisations. Many did not follow the suggested format of an answer and failed to give information related to aims, organisation and provision. Most

candidates chose the Australian Institute with which to compare the UKSI. Many recognised the similarities between the two organisations in relation to aiming to produce sporting excellence but gave little detail on funding and structure. Those choosing the French organisation again referred to the elitist nature of promoting sports excellence but gave little information on facilities and coaching. This section demands comparison and yet many candidates do not make comparisons. These comparisons do not have to be differences but also include similarities and those candidates who scored well recognised and explained these similarities.

Grade Thresholds

Advanced GCE (Subject) (Aggregation Code(s))
January 2008 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
2562	Raw	60	44	39	34	29	25	0
	UMS	120	96	84	72	60	48	0
2563	Raw	45	34	31	28	25	23	0
	UMS	90	72	63	54	45	36	0
2565	Raw	45	29	26	23	20	17	0
	UMS	90	72	63	54	45	36	0
2566	Raw	60	48	44	40	36	32	0
	UMS	120	96	84	72	60	48	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
3875	300	240	210	180	150	120	0
7875	600	480	420	360	300	240	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
3875	9.08	28.44	52.04	80.94	96.97	100	661
7875	7.14	29.46	60.71	89.29	97.32	100	112

773 candidates aggregated this series

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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