

Physical Education

Advanced GCE **A2 7875**

Advanced Subsidiary GCE **AS 3875**

Report on the Units

January 2007

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Advanced Subsidiary GCE Physical Education (3875)

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Chief Examiner's Report

This series of examination followed the pattern of previous winter sessions with a fairly large cohort of AS candidates (5000 for 2562 & 6000 for 2563) and a much smaller A2 cohort (1750 for 2565 & 100 for 2566).

The majority of the AS candidates were attempting to improve on their grades attained in the Summer 2006 examinations whilst the A2 candidates were in the main sitting the exam for the first time.

Once again the standards ranged from very strong candidates who demonstrated good understanding and depth of knowledge as well as sound exam technique, to those who, as first time entrants, had clearly not had sufficient time to develop the required depth of knowledge, understanding and application of the content. Centres who enter candidates for the first time in the January session should ensure that candidates have the appropriate levels of knowledge and understanding to be successful.

It is pleasing to note that Principal Examiners again refer to strong candidates planning their responses and contextualising theoretical knowledge with appropriate practical examples. It is also encouraging that the quality of written communication continues to improve, particularly as these marks can effectively improve a candidate's result by a grade.

Levels mark schemes again allowed examiners to credit candidates who demonstrated high levels of knowledge and understanding and who appreciated the requirements of the command words in a question and answered appropriately.

2562 - The Application of Physiological and Psychological Knowledge to Improve Performance

General Comments

As is often evident at the January sitting of Unit 2562, the mark distribution ranged from single figures to the mid fifties, with a substantial number of candidates gaining marks in the low twenties. It is also apparent, as has been stated in previous January Reports, that an increasing number of Centres are entering candidates in the January sitting as their first attempt at this unit.

The main observation with regard to Centres entering candidates for their first attempt is that only a small percentage of the cohort appears to have a thorough grasp of all the concepts covered by both the specifications examined on this unit, with the majority of candidates clearly not having assimilated a sufficient amount of relevant knowledge to support their responses. Exemplification of this point was evident in questions 2a(iii) (Gas Diffusion), 3c(ii) (Drive Reduction Theory) and 4b (Operant Conditioning), whereby candidates were, in some cases, able to provide a proportion of the information required, but did not show development of the theoretical concept being examined. Whilst it is possible for Centres to complete both the Anatomy and Physiology and the Acquiring and Performing Movement Skills specifications within a four month period, the quality of candidates' responses in many instances suggests that only a limited amount of time had been available for reiteration, reinforcement and revision of all aspects contained within the two specifications.

It was pleasing to note the success gained by some of the stronger candidates who had elected to re-sit the unit in an attempt to gain a higher grade. For such candidates their efforts were clearly rewarded with a relatively equitable mark distribution across both sections and all questions.

With reference to the above comments and in conjunction with the issues raised within each question commentary, it is to be hoped that the following points will prove to be relevant and appropriate feedback for Centres when preparing candidates for future examination sessions of Unit 2562.

- Candidates should carefully identify the component, phase, type and intensity of activity when embarking upon their responses in Section A.
- As further illustration of the above point, the terms/factors that demand applied knowledge of a process can be found in the following questions;
2a(i) 'Describe.....**during the training run**'
2a (iii) 'How is oxygen exchange **increased**.....'
2v 'Describe.....carbon dioxide is **expired**...'
- Candidates should note that where questions demand an example of an exercise in Section A, only a **named** exercise, as stated on the specification, will suffice. Descriptions of how to perform an exercise are not credit worthy.
- Repetition or re-wording of responses already offered will not gain additional marks E.g. 4c rehearsal/practice/repletion/over learning are all alternatives within the same mark scheme point and consequently cannot be credited twice
- Use of terms from a question as the main focus for a response will not be awarded marks

E.g. 3b(i) the two pacing continuum extremes need to be described in detail and not simply written as; 'self paced is pacing yourself'.

E.g. 4a(i) reaction time should be described as indicated on the mark scheme and not described as 'the time taken to react'.

- Failure to include practical examples within a theoretical description, when demanded, will result in a loss of marks
- Graphs should contain clear labelling on both axes, relevant and specific units of measurement and an appropriately sketched curve.

Comments on individual questions

Question 1

- (a)(i) On the whole, candidates accessed some if not all of the marks on offer. The main stumbling blocks being; the recognition of eccentric movement and the correct identification of the agonist as the gluteus maximus, with the most common error being the identification of the agonist as the rectus femoris.
- (ii) Inevitably, in many cases, the incorrect identification of the agonist in (i) led to use of an incorrect strengthening exercise in this question. As stated in the general comments, a named strengthening exercise is the requirement.
- (iii) Generally well answered. However, it should be noted that candidates should be encouraged to identify whether the process or activity within the question relates to a state of rest or movement. Where movement is the key aspect of the question candidates will be required to quantify their answers as opposed to simply describing a process.
E.g. mark scheme points 1, 2, 4, 8, should contain terms such as increased, greater, quicker and more.
- (b) Although there were some good explanations of angular motion, the majority of candidates were unable to fully explain this concept. The explanation required emphasis on the 'off centre' or 'outside the centre of mass' concept when using the illustration of hitting a ball, rather than simply suggesting that 'a ball is hit on the side'. Similarly, the circular motion of a swimmer performing front crawl arms in itself does not offer a complete explanation. A more appropriate response would contain reference to the fixed point of the shoulder joint around which the arm moves.
- (c) There is a need for specific terminology commensurate with Advanced Subsidiary level study. The common responses featured for this question referred to 'the heart' as opposed to the 'left or each ventricle'. Centres should also stress to candidates the need to make complete reference to units and values. Responses such as 120 or 120ml are incomplete. A full and correct response would, for example, be 120ml per beat.

- (d)(i) Stronger candidates were able to state the correct term of 'air' rather than the incorrect term of 'oxygen'. Equally, the better candidates identified air as being 'inspired **or** expired rather than the frequently occurring response of inspired and expired. As in (c) units were often omitted.
- (ii) The majority of candidates gained a mark for this question.

Question 2

- (a)(i) A generally pleasing set of responses with a substantial number of candidates gaining maximum marks, with points 1, 3, 4, 5 being the most frequently referred to. It was evident that it was only the stronger candidates who had a more complete grasp of the conduction system and the correct placement of atrial and ventricular systole within this system.
- (ii) A very straightforward question leading to numerous instances of maximum marks. Unfortunately however some candidates failed to grasp the specific requirements of the question and offered responses such as red blood cells, arteries and veins.
- (iii) Whilst stronger candidates gained 3-4 marks for this question, the weaker candidates tended to only gain 1-2 of the marks on offer. However, as was cited in the comments relating to question 1a(iii) there were numerous instances where candidates failed to quantify their responses with lower and/or increased, thereby simply describing the process of gas diffusion. The question clearly states that there is an increase in oxygen exchange during the training run and it is this increased exchange that candidates were required to focus upon in their answers. Equally, point 7 on the mark scheme required emphasis on the **delay** in OBLA/fatigue, whilst point 8 should place emphasis on **increased** energy/intensity/duration of activity.
- (iv) A generally well-answered question.
- (v) Whilst a number of Centres and candidates correctly identified the expiration phase of the mechanics of breathing within the question, many failed extract this crucial piece of information, thereby simply describing the mechanics of breathing per se. Unfortunately, several weaker candidates perhaps used the stimulus of gas diffusion in 2a(iii) and consequently offered irrelevant information concerning the process of gas diffusion as opposed to the mechanics of breathing.

Question 3

- (a)(i) Although this question was generally answered well there were a number of candidates who failed to grasp the meaning of 'characteristics' and proceeded to incorrectly give examples of abilities.
- (ii) A question which wasn't well dealt with given the simplicity of the subject area being examined, with many candidates identifying motor abilities as 'running', 'being good at sport' or 'being able to run fast'.

- (b)(i) Responses tended to be to one extreme or another. Able candidates answered each part of the question in detail by focusing on exactly what the term pacing referred to e.g. 'a skill is self paced when the performer controls the actual timing and speed at which they do the skill' or, 'an externally paced skill is one where the performer's speed and timing is controlled by other factors such as opponents'. The weaker candidates frequently repeated the term pacing without any qualification in relation to the control of speed or timing of the action.
- (ii) The responses to this question tended to be a reflection of the accuracy with which part b(i) had been answered and whilst self paced skills were more accurately exemplified, externally paced examples often lacked the detail that illustrated the influence that the environment would have on performance.
- (c)(i) Accurate and specific responses from the stronger candidates demonstrated a clear understanding of the two types of motivation and together with detailed and applied practical examples from a range of sports allowed access to the maximum marks available. Weaker candidates however made a number of errors ranging from; lack of clear descriptions of both intrinsic and extrinsic motivation, examples that did not actually link to any practical activity or, in several cases, descriptions and examples that related to feedback not motivation.
- (ii) At the top end of the mark range, responses were generally good and demonstrated sound applied knowledge. However, the misinterpretation of Drive Reduction Theory as Drive Theory meant that a considerable number of candidates and in some cases complete Centres failed to gain any marks for this question.

Question 4

- (a)(i) Point 3 of the mark scheme (response time = reaction time + movement time) was most frequently awarded. However, feedback from the examining team revealed that once again poor examination technique prevented numerous candidates from scoring any marks for point 1 (reaction time) and point 2 (movement time). As stated in the general comments section of this report, repetition of terms contained within the question as the main focus of a candidate's response does not demonstrate understanding and will consequently not be awarded any marks.
- (ii) Generally well answered.
- (iii) Appropriate examination technique was often the deciding factor in the awarding of marks for this question. Whilst many candidates understood the concept of choice reaction time and its application to performance, only a limited number gained all three of the marks available. Loss of marks stemmed from the following;
Point 1 – Axes were labelled the wrong way around or the vertical axis did not specify **choice** reaction time
Point 2 – Units/quantitative values were not included on either or both axes
Point 3 – The curve did not reflect the levelling out process

- (b)** Operant conditioning appears to be a concept not fully understood by many candidates and indeed centres. Whilst some responses included reference to trial and error learning there was often little or only vague application of trial and error within the explanation of operant conditioning. The candidates who had grasped the idea of shaping a performer's behaviour by the manipulation or 'setting up' a particular environmental situation, such as the badminton feed frequently cited, usually continued to include the idea of learning being enhanced by the introduction of reinforcement.
- (c)** A pleasing number of candidates gained maximum marks for this question. For those who gained three of the four marks on offer it was often a case of repetition of point 1 on the mark scheme (practice) that resulted in the loss of a mark.

2563 - Contemporary Studies (Written Examination)

General Comments

As in previous sessions, there was encouraging evidence of excellent subject knowledge and understanding by many candidates as well as efficient and effective examination technique. Many centres are clearly preparing their candidates extremely well.

This paper proved to be relatively accessible. Several questions were answered extremely well across the board, while the most problematical questions were those which focussed on the organisation and administration of sport. The vast majority of candidates at least attempted each question, with very few gaps being left.

This paper did not have a question that needed to be marked with the 'levels of response' mark scheme. Levels of response mark schemes will be used by the examining team when the question would perform best with one e.g. '**Discuss sport in Emergent Cultures such as Kenya.**' (6 marks). Centres may well decide not to explain the intricacies of levels of response mark schemes to their candidates, preferring instead to simply continue encouraging them to consistently obey the command word in each question (**identify, state, explain** or **discuss**, for example).

The three Quality of Language marks can make the difference between one grade and another on this paper. If candidates are asked to **discuss** a topic and they write key words against bullet points, they cannot score top marks. A candidate who answers the entire paper in brief bullet points (even for the high order commands) will be awarded a maximum of 1 from 3 for Quality of Language. Most candidates scored three or two marks for QOL on this paper. There were very few who scored one mark.

Comments on Individual Questions

1(a) Identify four different roles of a coach. (4)
As predicted this was a high scoring opening recall question with points **1 (instructor), 2 (trainer), 3 (educator)** and **10 (motivator)** being the most common. Candidates should be reminded that when (as in this case) the number of responses required in written in text in the question – then as a rule, only that number will be marked.

(b)(i) Why should coaches discourage performers from taking prohibited performance enhancing drugs? (4)
Candidates often perform well on questions relating to contemporary sporting issues as was the case here. Points **1 (cheating), 3 (health issues)** and **6 (role modelling)** were most common. Candidates who went down the route of offering suggestions such as: fear of bans, loss of medals and detrimental effect on performers' careers did not gain marks.

(b) (ii) What is being done or could be done to reduce the problem of drugs in sport? (4)
This was another high scoring question with most candidates displaying great confidence and knowledge. Centres clearly teach the issue of drugs in sport very well, including reasons for taking drugs, reasons why drugs should not be taken and possible solutions to the problem of drugs in sport. Note that although this question included reference to what is already being

done to solve the problem, candidates needed to qualify simple responses such as EDUCATION, TESTING, or RESEARCH in order to gain a mark. So, if one wrote *'both performers and coaches need to be educated and made aware of the dangers and responsibilities'* they would gain both points 1 and 2. If they simply wrote 'education' they would not score. Depending on the command word in the question, candidates should continue to be encouraged to expand on their key points succinctly and clearly in order to ensure a high grade. Most commonly awarded marks on this question were **1 (education of performers), 3 (stricter bans and punishments), 4 (improved or more frequent testing) 5 (use of role models).**

(c)(i) Describe how sport is organised and administered in the UK. (3)

Impressively, some candidates from entire centres answered these next three 'part questions' on organisation and administration of sport very efficiently to gain up to a maximum of 9 marks (three potential grades) – but they were in the minority. This was the first more testing question on the paper, which was intended to differentiate. It has not been asked before so candidates had no experience from past paper practice to draw on. **Point 5 (NGBs)** was the most commonly awarded, though candidates who focussed solely on NGBs and went into detail about their aims and role still only scored a maximum of one mark. **Point 9** allowed marks to be gained when organisations that are on the specification were correctly linked to a feature. Very few candidates were aware that the organisation and administration of sport in the UK is complicated, hierarchical, run largely by volunteers or is showing signs of becoming increasingly efficient.

(c)(ii) How do the National Lottery and the United Kingdom Sports Institute (UKSI) help to develop sporting excellence in the UK? (6)

Though mainly recall, a majority of candidates continue to lack confidence, knowledge, understanding and accuracy in their responses to questions in this area of the specification. Maximum marks here could make a two grade difference overall. Most common points for National Lottery were **3 (funding of certain bodies such as UK Sport, NGBs or Sports Colleges), and 6 (reference to mass participation and facilities).** Most common points on UKSI were **7 (high level coaching or facilities or training), and 8 (sport science support).**

2(a)(i) Identify some of the values or benefits to be gained from a positive Physical Education experience. (4)

Pleasingly, this was tackled extremely successfully by most candidates with all 11 marks on the mark scheme being gained equally.

(a)(ii) What are the characteristics of physical recreation? (4)

This was a repeat of a question from May 2006, so many candidates had practised it as part of their exam preparation and did very well with clear and accurate responses. Once again, weaker candidates were vague rather than specific in their responses, writing things such as *'physical recreation happens whenever* (a failed attempt at point 7), *wherever* (a failed attempt at point 10), *is not organised* (fail point 2) *and is not competitive* (fail point 4). If, however, they had written ***'Physical recreation happens in the person's free time, in a place decided by agreement, with relatively limited organisation and a limited amount of competition,'*** they would have scored a maximum of 4 marks. Just a few extra, relevant words often add sufficient clarity to gain marks. Candidates who strayed into the **benefits** of physical recreation

in their answer to this question (e.g. stress relief/improved body shape etc) did not gain any credit.

(a)(iii) Why would the Olympic Games be classified as sport rather than as physical recreation? (3)

This was a very high scoring, slightly disguised question on the characteristics of sport. Most candidates scored a maximum of 3 marks here and exam technique was excellent.

(b)(i) Explain each of the characteristics: Natural; Ritual; Functional. (3)

Most Contemporary Studies examinations have some key words or phrases that candidates need to explain or define. Relatively recent ones include: opportunity, provision, esteem, physical prowess, physical endeavour, colonialism, emergent societies, American Dream and Shop Window. On questions such as these, candidates need to ensure that they didn't repeat the exact words from the question.

Here the paper moved to the **Sport and Culture** section of the specification for the final 10 marks. Quality of responses here were mixed, with many efficient explanations, but other vague responses or apparent guesses.

(b)(ii) In what ways did colonialism change the lifestyle and traditional physical activities in tribal cultures? (3)

Another mixed batch of responses here. Many candidates had clearly been very well taught, had learned their work and were able to give several accurate, concise and clear responses. Others seemed to be unsure here and wrote generally about the development of rugby in Samoa. Again candidates should be encouraged to write more than key words alone. So, the words 'education' 'religion' 'law and order' alone would not have been sufficient to gain credit. Candidates could have written: *'as a result of colonialism several English style schools opened (point 6), Christianity was imposed (point 5) and a new system of law and order was introduced.'* (point 7) to gain a maximum of three.

(c) What strategies do emergent countries such as Kenya use to maximise the likelihood of achieving international sporting success? (4)

In one way, this final question was quite demanding in that 4 points from only 5 on the mark scheme were required to score a maximum. Responses varied here. Many were high quality, accurate and clear. Others were vague and general about running in Kenya rather than the specific strategies that are used to maximise the likelihood of achieving international sporting success. All five points on the mark scheme were equally frequently achieved.

2565 - Physical Education: Historical, Comparative, Biomechanical and Sport Psychology Options (Written Examination)

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 and the Quality of Language mark continues to show an improvement. The use of paragraphs and the fluency of these planned responses 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.

This session the examiners continued with the use of a 'levels mark scheme' to assess responses to particular parts of the examination paper. This provided the examiners with the opportunity to credit higher order levels of knowledge and understanding. Higher order skills such as analysis, application, comparison or argument may appropriately require a differentiated mark scheme and a levels mark scheme provides this. In the Psychology of Sport Performance Question 4 (bi), a levels mark scheme was applied and used particularly successfully to determine between weaker candidates who were only capable of describing possible positive and negative effects of an audience on sports' performance, and good candidates who were able to explain the psychological theories underpinning effects of an audience as well as giving practical examples to exemplify them. For example:

'If the crowd are on your side and cheer you, this can have a positive effect.'

'Arousal levels increase for performers and this can have positive and negative effects. The 'Homefield Advantage Theory' suggests that the crowd for players playing at home, for instance at Old Trafford for Manchester United players, will have a positive effect on the players' performance.'

Similarly the levels mark scheme was applied in the Historical Studies in Physical Education Question, part (d). Candidates were expected not only to describe the provision and organisation within late nineteenth century English public schools, but also to answer 'how' this promoted sports and games. Weaker candidates simply described the 'Athleticism' stage, whereas more successful candidates were offer able to offer an explanation of how this promoted sports and games.

In both these questions, the need for an explanation renders the 'normal' mark scheme ineffective. The examples offered above characterise the differences between candidates operating at Level 3 who can access the top marks for higher order answers and those at Level 1 who are offering very simplistic answers.

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) The aims of the 1902 model course were well known although some candidates failed to appreciate the importance of the development of 'fitness' for military preparation in point 1. Weaker candidates merely described the model course and often described the lesson without identifying the aims.
Those answering the aims of a lesson based on *Moving and Growing / Planning the Programme* were less successful, again often resorting to a description of the lesson rather than its aims.
- (b)(i) This was a particularly well answered question with many candidates not only identifying differences correctly but also presenting their answers in a logical and developed manner. Less successful candidates wrote all they knew about popular and rational recreation and hoped that in doing so, direct comparisons were made.
- (b)(ii) Improved transport, working conditions, literacy, law and order and the impact of the industrial and urban revolutions were frequently offered and candidates scored well on this question, showing a good understanding for the reasons why rational recreation differed from popular recreation.
- (c) Pre-industrial social class concepts were well understood with the feudal nature of society, the different games the two classes played and the differing roles the courtly and popular classes held in certain pastimes often being correctly identified. Candidates often scored a sub max of three for this part of the question. Whilst the emergence of a middle class often gained the final mark for maximum marks for the question, changes in work conditions and the role of the amateur and professional as distinguishable by class were both offered regularly.
- (d) This final question was an excellent differentiator. Weaker candidates described the 'Athleticism' stage of public school development of games. More successful candidates explained how the features of public school provision and organisation of games helped promote sports and games. Marks from across the mark scheme were identified with candidates who developed their answers and applied them to the question, securing a more successful mark.

2 Comparative Studies in Physical Education

- (a)(i) Most candidates scored well and many achieved maximum marks. The identification of INSEP / UNSS and CREPs allowed candidates to score marks without describing or explaining their function. This was a straightforward recall question which candidates responded well to.
- (a)(ii) 'Boules' is not an ethnic sport, but almost every candidate could explain the importance of ethnic sports to communities in France and many candidates did offer an acceptable example of an ethnic sport.
- (b)(i) 'Title IX' was well understood by candidates who scored marks across the mark scheme. Equal opportunity, greater participation and increased status were the most frequently occurring responses.

(b)(ii) Questions involving the 'USA' often score well and this question proved no exception. Candidates appear well prepared and can, as in this question, apply their understanding of the country to the question posed.

ci There appeared to be, in contrast to the previous question, evidence that candidates were less prepared for a question involving Australia. Whilst successful candidates scored well with their knowledge of 'changing of team names', introduction of soccer onto the curriculum and the newly developed support of the AIS for soccer, many seemed unprepared for this question. Recent international success and the development of role models were, however, two marks that candidates were able to access successfully.

3 Biomechanical Factors Involved in Human Movement

(a) Candidates either knew the formulas for calculating work done and power and thereby were ensured maximum marks, or did not know the relevant formulas and failed to score.

(b) Well prepared candidates reflected their understanding of factors determining how far an object is thrown by readily explaining the effects of speed, angle of and height of release.

(c)(i) Candidates generally do not score well when forces diagrams are required. Most, however, correctly identified the air resistance force being in opposition to the direction of motion and weight coming from the centre of the javelin. Few correctly placed the 'lift force' on the diagram.

(c)(ii) There was good understanding of the principle of determining a resultant force using parallelogram law, and candidates often secured a maximum for this question. If a mark was not gained, it was for the downwards force arrow (weight – lift force) not being identified.

ciii Levels marked questions for Biomechanics are often the most useful way of differentiating levels of understanding. There were some outstanding responses from candidates who could ably demonstrate with an airflow diagram, how a lift force is generated and how the flight paths of the javelin and shot can be compared. Detailed and developed responses often referred to each point of the mark scheme with an explanation of the Bernoulli Effect and the airflow diagram being attempted by weaker candidates. The flight paths of the shot and javelin were less well explained by these candidates.

4 Psychology of Sport Performance

(a)(i) Although many candidates were able to identify the cognitive, affective and behavioural components of an attitude, it was, perhaps, surprising, how few candidates could offer a definition or apply their understanding of an attitude to practical examples.

(a)(ii) Formation of an attitude was well answered with previous experiences and significant others regularly appearing. More successful candidates were able to identify media, socialisation and religious beliefs as factors contributing to the formation of an attitude.

(a)(iii) Whilst sexism and racism were often identified as examples of a typical undesirable prejudice, many candidates appeared unprepared for the question and failed to identify an appropriate sporting prejudice. There appeared to be little appreciation for strategies to change an attitude although well prepared candidates scored well through their understanding of cognitive dissonance and persuasive communication.

- (b)(i)** This levels marked question proved an excellent differentiator and whilst some candidates failed to offer any practical examples and, despite outstanding theoretical knowledge, only scored three marks as a maximum, many candidates demonstrated a very good understanding of the theories related to the presence of a crowd or audience.

Drive, Homefield, Evaluation Apprehension and Proximity theories were all regularly explained and candidates were often rewarded with maximum marks for their application of these theories to practical examples, showing both positive and negative effects.

- (b)(ii)** The application of a levels answer marks scheme once again proved useful in differentiating. Weaker candidates merely listed strategies, often based around the cognitive and somatic strategies examined in last summer's examination, whilst successful candidates were rewarded for describing the strategies that can be employed to combat the effects of social inhibition.

2566 - Exercise and Sport Physiology and the integration of knowledge of principles and concepts across the area of Physical Education

General Comments

There are still some centres entering their candidates for the January examination who are clearly unprepared for the paper and would be better off entering in the June session to give more time consolidating their learning. The majority of candidates are generally better prepared and show good planning in their answers. The less able candidates write too much irrelevant material. For example writing in great depth on the Laws of motion as a response to the question on muscle movement or about the theory of attribution in sports psychology as a response to a question on personality. For this paper candidates are given credit for making links within and between topic areas, but these links must be relevant to the material in the question, otherwise some candidates stray off the point and waste a lot of time writing material for which they will gain little credit.

In the compulsory sport and exercise physiology question, the best candidates showed a very good understanding of the onset of blood lactate accumulation and its effects on skeletal muscle. Only the very best candidates scored full marks for explaining the principle of a coupled reaction using the ATP/PC system as their example. Most candidates responded to the compulsory aspect of the paper first and seemed to have spent an appropriate amount of time on this area that is marked without the synoptic mark scheme. This gave candidates plenty of time to respond in detail to the synoptic parts of the paper and more candidates this session wrote extensively drawing together mostly relevant material. The better candidates used plenty of practical examples from sport to illustrate their points and to put theories into context. This reveals that teaching in centres appears to be in line with the philosophy of the specification by synthesising theory with practice. The most effective candidates continue to link relevant material to other aspects within and between topic areas. For example linking social learning in the sports psychology option with observational learning in the acquiring skill option and in exercise and sport physiology, linking aerobic training to responses to exercise drawn from anatomy and physiology.

Most of the successful candidates planned their answers well and made their links throughout their answers. Candidates are generally using appropriate technical and specialist vocabulary and write clearly and legibly, all of which are necessary to gain synoptic credit. Very few candidates infringe the rubric requirements but a few answered questions from both the scientific focus and the socio-cultural focus.

The most popular route taken in the synoptic section of the paper 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 chose the contemporary issues into comparative studies and even fewer opted for any route involving biomechanics.

Comments on Individual Questions

Section A

Sport and Exercise Physiology

- 1(a)(i)** In this part of the compulsory question most candidates identified the use of the lactic acid system or anaerobic glycolysis with the process taking place without oxygen. The less able candidates did not go on and explain the decrease in the levels of glycogen. The best candidates stated that glycogen is used as a fuel, is broken down by the enzyme glycogen and produces energy for the resynthesis of ATP. On the whole the majority scored well for this first part of the question.
- (b)(i)** The majority of candidates identified that the onset of blood lactate accumulation causes muscle fatigue and makes muscle contractions difficult but fewer recognised that pH levels drop in muscle fibres and that this effects enzyme action. The best candidates respond to seemingly straightforward questions with the depth necessary to score full marks.
- (ii)** Candidates who scored well in this part identified both when and how lactic acid is fully removed from the muscles. Some candidates neglected to state when it is removed. The majority of candidates gave responses related to the use of oxygen and that lactic acid is converted to pyruvic acid. The best candidates gave a good explanation of lactic acid being metabolised to carbon dioxide and water. Many recognised the importance of sweat and urine in excreting lactic acid from the body.
- (c)** Many candidates scored poorly for this part of the question. Some candidates clearly did not have the confidence to even attempt this part. Those that did do well on this part stated that a coupled reaction was a linked reaction and that the products of one reaction are used in another. They then went on to explain this using the ATP/PC system as required in the question. Some who attempted this got a little confused between exothermic and endothermic processes.

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 to make appropriate links. Many candidates recognised what is meant by an agonist but could not define accurately the antagonist and the fixator. To gain marks for definitions, candidates should ensure that they learn detailed and sound definitions. Many could name some of the muscle involved but failed to link these with the elbow joint and the shoulder joint. Simply to state that the triceps brachii is the agonist does not answer the question unless it is linked to a joint. Some candidates who scored little with this question did not use the correct terminology for the muscles involved. For this A level standard paper it is expected that candidates should know the correct terms for the main muscles that may be involved in movements. The better candidates also linked appropriate information regarding movement analysis for example stating that the pectoralis major is the agonist for the movement in the shoulder joint and that this provides horizontal flexion.

In the next part of this question, candidates were asked to explain the exchange of oxygen between blood and muscle tissue at rest and then during exercise. Some candidates gave a lot of information about the movement of blood around the body and gaseous exchange at the lungs which may set the scene before the processes at the muscles but too much information led to a lack of clarity in their answers and some spent little time actually explaining the concept of partial pressure and how it is applied at the muscles. Nevertheless many candidates scored well in this part and showed clearly that they had been taught well about the process of gaseous exchange.

(b) Acquiring and Performing Movement Skills

This question was not as popular with candidates this session. Many candidates, once again confused their answers by including irrelevant material with some simply listing other areas of the specification in the vain hope that if enough is written something is bound to be relevant. This is clearly a mistaken tactic because their answers do not address the main issues involved in learning movement skills. Others knew their stuff and described well the operant theory of learning, including some relevant material drawn from Thorndike's Laws. Some candidates were confused between operant and observational theories. Operant is essentially about the manipulation of behaviour via reinforcement, whereas observational learning is linked to copying models of behaviour. Positive reinforcement is well understood by most but negative reinforcement is still confused with negative feedback and punishment. Those that scored low in this part simply named the three types of reinforcement that appears in the specification and consequently scored few marks. The question clearly states that they should identify and describe. Centres are reminded to reinforce (forgive the pun) this with their students! The best candidates went to town with observational learning and not only stated the main issues but also gave a good explanation of Bandura's model of observational learning linking each part of the model with relevant practical examples. The giving of practical examples relevant to the question was a feature of the better candidates. Those who scored well gave a good practical example after every main point made – usually at the end of each paragraph written. The candidates who scored high synoptic marks not only gave practical examples but also linked their material with social learning from the sport psychology topic and also included some material on the growth of sports confidence with learning.

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 scored well with the first part of this question related to the types of ergogenic aid. Most not only identified the type of performer that would benefit from these aids but also gave in detail their performance enhancing qualities and associated side effects. The better candidates gave suitable practical examples, for example for creatine supplements candidates wrote about throwers in athletics or team players who are involved in high intensity, short duration activities. Similarly for carbohydrate loading candidates gave good practical examples of aerobic performers and also gave a good explanation of the process of carbohydrate loading and whilst this was not directly asked for by the question linked well with the issue of performance enhancement and therefore scored synoptic credit. In the second part of this question candidates identified either continuous training or more specifically, fartleck training. Some candidates chose an interval or circuit type training, which was clearly not required as stated in the question. Centres still need to reiterate to candidates the importance of reading the question at least twice to ensure that they understand the question's requirements. Most candidates scored well with their descriptions of the type of training to develop aerobic capacity but scored less well with the advantages and disadvantages.

Most candidates answered the third part of this question on target heart rates poorly. Those who did reasonably well identified the Karnoven principle and described this in detail but did not then go on to applying the principle. Most did not state that the target heart rate is the range of heart rates

prescribed to match the training intensity requirements of a performer. This aspect of the specification has not been examined much before and it is clearly an area for further development in centres' schemes of work.

d) Biomechanical Analysis of Human Movement

Very few candidates answered this question. Once again responses varied often from being very good or very poor with little in between. Those that showed full calculations for the first part of this question scored well and centres are reminded that all workings must be clearly and legibly shown for the candidate to get full marks. The explanations from candidates of the lever systems showed a good understanding of the relative efficiency of second and third class levers, with class 2 being more efficient. The best candidates then went on to give a good explanation about why this should be the case. The weaker candidates gave very short explanations or none at all. Friction was understood well by some candidates and described well how sports performers increase and reduce friction in order to improve performance. The best candidates gave lots of good practical examples related to the 'underweighting' of skis to turn and 'spikes' shoes for sprinters to increase friction. Those that scored low marks once again only gave superficial responses that simply defined friction and made little attempt to go on and explain the part it plays in sports performance.

(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. Many candidates gave relevant practical examples but those who scored low synoptic marks gave little or no practical context for their answers or used material that was mostly irrelevant to the requirements of the question.

The theories of personality favoured by most candidates were trait theory and social learning theory with the latter being used to make relevant links with observational learning in the part one question. Social learning was well described but often lacked explanation. For example many stated that personality characteristics are often learned through the influences of others who are significant but did not go on to explain that this enabled performers in sport to adopt the norms and values of their group or other performers. The concept of socialisation was rarely explored. If candidates decided to describe and explain the Interactionist approach to personality they often did not use practical examples to put the theory into context. It is advisable for centres to instruct their candidates to give relevant examples from sport as much as possible to exemplify their answers. Most candidates could identify the characteristics of an effective leader in sport and the best put these characteristics into a sports context. The explanation of factors other than personality that can affect leadership styles was less well done. Many were too superficial with their responses and merely identified the factors without explaining why they might affect styles of leadership. The best candidates drew from the work of Fiedler and linked specific situational characteristics with leadership styles and commented on the favourableness of the situation as an important variable in the adoption of certain styles. Candidates who scored high synoptic marks not only used plenty of practical sports examples but also linked their material with the confidence of group members and the good use of reinforcement by leaders to motivate sports performers. The poorer candidates simply listed the different styles that leaders could adopt with few other explanations. Some of the weaker candidates are also writing responses that contain material that has little to do with the requirements of the question. This seems to be a particular feature of those responding to this sports psychology section. Centres should remind candidates that they should only use material that supports their answer rather than merely listing unrelated psychological concepts.

Question 3 (socio-cultural focus)

Part 1

(a) Contemporary Studies in Physical Education

The majority of candidates who chose the socio-cultural route completed the contemporary issues and history questions. Very few candidates indeed answered the comparative studies question. Candidates seemed to relish a discussion on the merits of the role of the media in influencing sport. The better candidates went beyond the listing of relevant factors and gave an analytical discursive account of both the advantages and disadvantages. Most got the idea that the media can attract funding for sport but also that this comes with strings attached and that the media can dictate structures and timings of sports activities. Some of the best answers weighed up the pros and cons of sporting stereotypes in the media and that there is a huge number of sedentary sports fans that rarely leave their armchairs.

Most candidates knew little of both UK Sport and home country organisations both in terms of their function and their influences on sporting excellence and mass participation. The better candidates recognised their roles in promoting and supporting participation and their work with other partners to promote excellence. The better candidates used practical examples and were able to make links with other contemporary issue topics. Few made relevant links to relevant historical issues.

Part 2

(b) Historical Studies in Physical Education

Candidates showed a good understanding of pedestrianism in pre-industrial Britain and identified the roles played by the lower classes and the gentry especially as patrons. The better candidates described the event surrounding the races and the festival atmosphere along with the inevitable wagering and corruption. The best made good links with amateurism and professionalism throughout their answer and the importance of social class. The features of athletics in nineteenth century public schools were rarely described in depth with only a few going beyond hare and hounds as an activity. Better candidates again recognised the wider picture of athletics in the context of these elitist schools. Some described well the social occasion and the opportunities for headmasters of the time to showcase their school. Few saw the opportunity to link the latter with sporting prowess in our present days schools. Responses dealing with athletics as a rational recreation again rarely went beyond the superficial but some of the best candidates included the ways in which the different social classes of the time were involved in a range of activities.

The next part of this question demanded that candidates discussed both amateurism and professionalism in rational team games during the second half of the nineteenth century. Most candidates recognised that the motivations of the gentleman amateurs were very different to the lower class professionals. The better candidates linked this well with amateur and professional sports of the present day and scored high synoptic marks. There were some good responses about cricket explaining well that although the gentry and lower classes were on the same pitch their roles were often very different as was the way they were treated and expected behaviour.

(c) Comparative Studies in Physical Education

Very few candidates attempted this question. Most who did attempt this question had a good understanding of the strategies used in the USA to increase mass participation in physical activities. Little League sports were cited as well as midnight leagues in attempts to increase participation especially in the inner city areas. Title IX was often quoted in candidates' responses showing an understanding of the importance of gender equity. Candidates who scored good synoptic marks made links with the strategies of the USA with the strategies identified in their part 1 answer.

Candidates scored less well when comparing the strategies to promote mass participation in the UK with those of either France or Australia. Most who attempted this chose Australia as their country of comparison. Too many candidates continue to make statements about the provision in a country without making the comparison required by the question. Consequently such candidates could not access the higher mark range. The best candidates were able to identify relevant promotional policies, environmental influences and the status of mass participation in their chosen country. Again the very best linked their material with the material that they had used in part one and the role of partnerships and government agencies. The best candidates planned their work carefully making only relevant points and after each point making the comparison with the UK. Centres should ensure that candidates are well versed in this examination technique required especially for the comparative studies question.

**Advanced GCE Physical Education 3875/7875
January 2007 Assessment Series**

Unit Threshold Marks

Unit		Maximum Mark	a	b	c	d	e	u
2562	Raw	60	43	38	33	28	23	0
	UMS	120	96	84	72	60	48	0
2563	Raw	45	37	33	30	27	24	0
	UMS	90	72	63	54	45	36	0
2565	Raw	45	31	27	24	21	18	0
	UMS	90	72	63	54	45	36	0
2566	Raw	60	42	38	34	30	26	0
	UMS	120	96	84	72	60	48	0

Specification Aggregation Results

Overall threshold marks in UMS (i.e. 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	6.44	19.56	48.00	77.78	95.33	100.0	506
7875	2.56	28.21	60.68	86.33	95.73	100.0	162

668 candidates aggregated this series

For a description of how UMS marks are calculated see;
http://www.ocr.org.uk/exam_system/understand_ums.html

Statistics are correct at the time of publication

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