

Physical Education

Advanced GCE **A2 H554**

Advanced Subsidiary GCE **AS H154**

OCR Report to Centres

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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 specification 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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Unit G451 An introduction to Physical Education (Written Examination)

Many candidates interpreted questions well and showed evidence of breaking down questions to focus on essential terms including:

- **Command words** eg. identify, describe, explain, evaluate.
- The **subject being examined** eg. oxygen diffusion, types of transfer or the nature of sport in the USA.
- The **subject focus** (or specific aspect(s) of the subject being examined) eg. oxygen diffusion **at the alveoli during exercise**.

On a-d questions, candidates should continue to note the exact number of marks available and give sufficient succinct, separate points reflecting question weightings. There was no obvious evidence that candidates lacked time on this paper.

Some candidates failed to indicate on the main body of the script where they had used AOs which should be guarded against. There is still evidence of writing being squashed into the margins and under the designated lines allocated to each question which should also be guarded against.

Knowledge and understanding of skills required for the 10-mark questions continues to improve. On the whole, answers are increasingly thorough with more depth and breadth of knowledge. The most successful candidates incorporated a mini plan (which they did not cross out) and included relevant and interesting practical examples throughout their answers.

Candidates who found the 10 mark questions challenging showed limited knowledge and understanding of the topics examined or wrote predominantly knowledge-based answers. Great care must also be taken to address each part of these extended questions, otherwise it's impossible to get to the very top of level 3.

Candidates need to be clear about the five criteria on which the extended questions are judged.

These criteria are:

- Knowledge and understanding of key points
- Development of key points
- Use of practical examples to illustrate those developed points
- Use of correct technical vocabulary
- Quality of written communication

The standard of response across the three sections on the paper was fairly equitable. Each section had parts where the candidates scored well and parts that the candidates found more challenging, the latter acting as important discriminators.

Section A: Anatomy & Physiology

As a whole, this question performed well, with candidates achieving a good spread of marks. It was pleasing to note the upward shift in total marks gained from previous sessions, with the majority of candidates scoring between 12 and 21 marks out of 30. Therefore, this question proved to be a good discriminator between strong and weaker candidates. It is felt that all questions in this section were pitched at the appropriate level of difficulty and this was evidenced through the very small number of nil responses.

- 1 (a) i Fig. 1 shows an athlete performing an upright row. Complete the table below for the athlete's shoulder joint whilst the bar is being raised. (table required) Joint Type/Agonist/Antagonist/Type of Muscular Contraction. [4]**

This was generally well answered, although only a relatively small percentage of candidates achieved maximum marks; with the majority achieving 2 or 3 marks out of the 4 available. Nearly all candidates could identify the shoulder as a ball and socket joint and most managed to identify that the agonist muscles were working with concentric contraction. The names for the agonist and antagonist muscles involved in abduction of the shoulder were less well known.

- (a) ii The upright row requires a strong force of contraction. Which is the main muscle fibre type recruited during this exercise? [2]**

This question was answered well with a very high percentage of candidates identifying a type 2 muscle fibre type.

- (b) i Identify two physiological factors which affect joint stability. [2]**

This question required candidates to apply their knowledge of the structure of joints to joint stability. It was poorly answered with few achieving maximum marks. A significant number made reference to ligaments. However, a common error was for candidates to talk about the secondary factors such as age, body weight or gender and failed to link these to specific physiological factors relating to the musculoskeletal system.

- (b) ii Outline three ways in which physical activity can improve joint stability. [3]**

The answer to this question was closely linked to (b) (i). However, few candidates made this connection. Most candidates scored 1 or 2 marks out of the 3 available. Those who scored well, outlined how physical activity improved the strength of ligaments and tendons and improved muscle tone. However, a significant number talked about physical activity having an impact on bone density, which by itself was irrelevant to the question unless supported by reference to connective tissue.

- (c) Describe how the heart's conduction system controls the contraction and relaxation phases of the cardiac cycle. [5]**

This was a straightforward question on the role of the conduction system in the contraction and relaxation phase of the cardiac cycle. To score maximum marks, candidates therefore had to show knowledge of both systolic and diastolic phases of the heart beat. Overall, the knowledge of the features of the conduction system was good. However, only the stronger candidates, who read the question carefully, managed to achieve maximum marks. Most candidates omitted to write anything on the relaxation phase, so scored for the contraction phase only. Weaker candidates gave answers that simply described the passage of blood through the heart without reference to how the conduction system controlled this.

- (d)i Outline how oxygen is transported in the blood. [2]**

This was a straightforward recall question for 2 marks and candidates scored well. The transport of oxygen with haemoglobin in the form of oxyhaemoglobin was widely known, while many candidates also knew that oxygen dissolved in blood plasma to gain maximum marks.

(d) ii Describe the process of oxygen diffusion at the alveoli during exercise.

This question was a good discriminator. The stronger candidates were quick to make the link between exercise and a steeper oxygen diffusion gradient and could describe the process in detail, so achieved maximum marks easily.

However, the overall understanding of the process of external respiration during exercise was weak with the majority scoring either 0 or 1 mark out of the 4 available. These weaker candidates could identify that the partial pressure of oxygen was high in the alveoli for the first mark, but failed to describe the process in full. There were also a notable number of candidates who talked about carbon dioxide.

(e) Describe the three types of motion created by a performer in a tennis serve. Define Newton's Laws of Motion. Explain how Newton's Laws and the application of force can be applied to a tennis serve. [10]

Candidates achieved the full range of marks for this question. The question required the candidate to pull together their knowledge of

- (i) types of motion
- (ii) (ii) Newton's Laws of Motion and
- (iii) (ii) application of force,
- (iv) and apply this to the action of the tennis serve.

The question therefore had three parts, and it was pleasing to see a good number of candidates achieve the level 3 descriptors and discriminators in their answer. It was also encouraging that over half the candidates scored level 2 or above on this question. However, a notable number failed to write about all three parts of the question, which limited their access to level 3. Newton's Laws were the most well known part of the question, with candidates describing and applying the 1st and 3rd laws successfully. A common error for the 2nd law was that candidates failed to make the link between the size of force and **acceleration** or **rate of change** of momentum, velocity or speed. They simply linked force to a change in velocity or speed and therefore repeated the 1st law. Types of motion were the next well known area with the stronger candidates naming and describing the three types accurately with knowledge of angular and general motion being stronger than linear. Knowledge on the application of force in relation to the centre of mass to produce linear or angular motion was less well known, and relatively few candidates made reference to this third part of the question to access 9 or 10 marks. It is advised that centres continue to encourage candidates to ensure they visit ALL areas of a question.

Section B: Acquiring movement skills

2(a) Using a practical example, describe open loop control when performing a movement skill. [4]

Just over 20% of candidates scored a max on this question, by describing three theory points on open loop control plus the required practical example (worth one mark). The most common practical example given was the golf drive, while the most common theory points were 1 (no reference to feedback), 2 (for ballistic skills), and 3 (actions cannot be changed during performance). Over 34% of candidates scored no marks on this question.

(b) Part, whole, progressive part and whole-part-whole are all methods of practice. Describe each of these four methods of practising movement skills, giving a practical example for each. [4]

Examiners were looking for **understanding** of the concepts when marking this question. Repeats of question words/practice types within the description were sometimes acceptable eg part practice is **splitting or breaking the skill down** into parts or whole practice is doing the whole skill **in one go**.

However, the simple isolated use of the key word as a description was not acceptable eg part practice is practising in parts, or whole practice is doing the whole thing. It was pleasing here that the vast majority of candidates did attempt a practical example to go with each method of practice, as both description and suitable example were needed for each mark.

This question stretched the cohort quite well between 0 marks and a max of four. The most common score was 3 marks (at just over 30%).

(c) Describe the characteristics of each of the three named phases of learning movement skills. [6]

Nearly 45% of candidates scored 5 or 6 max here. The vast majority named the three phases correctly as cognitive, associative and autonomous and were able to come up with two suitable descriptive points for each phase.

(d) Describe the five different types of transfer that can occur when learning movement skills.

Give one way in which transfer of learning positively affects the development of schema.[6]

Approximately 25% of candidates scored four or more on this question by efficiently rattling through the five types of transfer that are on the specification and giving an accurate descriptive point of each. Our five types of transfer being positive, negative, pro-active, retro-active and bilateral. I'VE DELETED THIS BECAUSE IT COULD BE ARGUED THAT IT SHOULD BE! Having said that, a disappointing percentage of candidates found it difficult to score here (nearly 35% getting 0), in most cases due to a direct repetition of the words **positive** and **negative** in their descriptions, a misunderstanding of pro-active and retro-active transfer, or simply that five different types were not known by the candidate.

While an example was not required, some candidates got their marks by successfully describing the types within an example. An example of this being 'positive transfer is when you're teaching the overarm throw and it has a good effect on a performer's tennis serve.'

Point 6 on the mark scheme relating to how transfer can affect the development of schema was seldom awarded.

(e) Discuss how operant conditioning could be applied to young people learning movement skills, and adopting a balanced, active, healthy lifestyle.[10]

Candidates who answered competently on this question most often came up with, and then developed, the following points:

- Reference to Skinner
- S-R bonds being formed or strengthened
- Trial and Error
- Manipulating the environment
- Positive reinforcement
- Praise or reward
- Punishment

Very few mentioned Thorndike's Laws, and candidates continue to confuse negative reinforcement (the giving of disapproval or negative feedback, which is removed when the correct response occurs, in order to **strengthen** the S-R bond or to increase the likelihood of the desired response occurring again).

On the whole, this 10-mark question on operant conditioning was not well received with less than 3% of candidates getting into level 3 (8-10 marks). Approximately 70% of candidates scored in Level 1 (0-4 marks), thus showing (according to the question specific discriminators) 'basic discussion on operant conditioning, little or no reference to different types of reinforcement, basic knowledge and understanding of S-R bond, reference to just movement skills or just BAHLS'.

Nearly 30% of candidates were unaware of operant conditioning as a key theory of learning (first bullet point on page 19 of specification) and scored 0 marks.

Section C: Socio-cultural Studies relating to participation in physical activity.

With 'explain' as the command word here, a simple list of words such as opportunity, provision or esteem were unacceptable – and this seemed to be understood well by candidates, most of whom tried to give reasons for their theory points to do with, for example facilities (which need to be specialist or adapted). Somewhat over 60% scored 3 or more here with a notable number referring to the positive impact of the Paralympics (London 2012)

(b) Describe how the following organisations help to increase sporting excellence: – UK Sport/the British Olympic Association. [5]

It's disappointing to see limited success by candidates on questions such as this which require simple recall knowledge of the organisations stated on the socio-cultural specification (IOC, BOA, UK Sport, the institutes and Home Country Organisations). Just 12% scored three or more here, with over 50% of candidates getting 0. Many teachers recommend to their students that they learn 'a handful' of key points about each organisation, which seems to be good advice.

(c) Outline the nature of sport in the USA. [5]

There were some really encouraging answers here. This is a popular area of the specification and one where candidates do well with approx 28% getting four or five (max). The most commonly hit answers were Pt 3 (Lombardianism), 4 (American Dream), 5 (golden triangle), 6 (commercialism) and 7 (entertainment).

Some candidates tripped up by simply repeating or developing their one key point to do with either win ethic (Lombardianism) or entertainment (action packed/high scoring/ spectacular/exciting). This reflected poor exam technique, as the command word 'outline' with five marks available, should flag up that five separate points were needed on the 10 lines available on the exam paper.

(d) How did Public Schools help to promote and organise sports and games in the nineteenth century. [5]?

Candidates responded well to this question and (encouragingly and in the main) stayed on target by focusing purely on promotion and organisation, rather than other aspects of nineteenth century public school life that re-take candidates might have come across in their A2 Historical Studies work. Approximately 18% of candidates scored a max here and well over half scoring three or more. All of the mark scheme points were equally regularly awarded.

(e) Critically evaluate the impact of the media on sport and on balanced, active and healthy lifestyles. [10]

This is a popular socio-cultural issue which lends itself to a 10-mark question and which most candidates 'had a good go at' – with differing levels of success. With the command as 'critically evaluate', and with two items examined (sport and BAHLS), a top quality, comprehensive answer would have 'hit' the following four areas:

1. Positive impact of media on sport
2. Negative impact of media on sport
3. Positive impact of media on BAHLS
4. Negative impact of media on BAHLS

Approximately 8% of candidates got into the top level here (8-10 marks). The question-specific discriminators for this question allowed candidates to score in Level 2 if they had 'satisfactory understanding of the impact of the media on sport, with both positive and negative aspects shown. Also if they attempted to show the impact of the media on BAHLS.'

Alternatively, they could also have accessed Level 2 with a detailed and comprehensive answer covering ONLY sport or ONLY BAHLS.

It was really pleasing that candidates had a good attempt at including BAHLS in this answer. On the positive side, they most often wrote about (and tried to develop) the following points:

- Programmes or documentaries that inspire you to participate
 - Or improve your health or diet
 - Role model who inspire by getting healthy or losing weight.
- While on the negative side, they most often came up with (and developed):
- 'Armchair spectators' and 'couch potatoes'
 - The negative influence of advertising with good linked examples

Unit G453 Principles and concepts across different areas of Physical Education

General Comments

Some of the candidates who sat this examination were generally well-prepared but as in previous January series too many candidates seem to be entered by centres without sufficient preparation, with some candidates unable to finish the paper or questions remained unanswered. Most fulfilled the requirements of the rubric.

This A2 paper is designed to test not only the knowledge and understanding related to Physical Education theory but also applied knowledge, including the ability to critically analyse and evaluate Physical Education material from the studied topic areas. Once again, the majority of candidates chose the questions on Historical Studies, Sports Psychology and Exercise and Sport Physiology and relatively few candidates attempted the Comparative Studies question and the Biomechanics question.

The quality of written communication was overall satisfactory with many candidates writing succinctly and effectively for the extended questions. Some candidates who scored less well on the extended question tended to lack effective planning in their responses which resulted often in a disjointed and sometimes muddled answer.

Centres are reminded that candidates should be fully prepared to give practical examples not just from sport and physical education, but also from a healthy lifestyle.

This series generally revealed a good range of answers for the shorter answer questions (questions a-c). This series showed generally low marks for the extended 20 mark question (d) in all topic areas.

Comments on Individual Questions

Historical Studies

Question 1

- a) Many candidates answered well and often described patronage, and wagering. Candidates were able to give details of specific competition or competitors eg Barclay. Candidates showed some lack of clarity when answering the second part of the question and consequently lost marks for not naming a specific form of athletics .
- b) Many candidates found this a challenging question. Candidates who tackled this question using comparative statements scored best - rather than a paragraph about popular recreation and then a paragraph about rational recreation. Some poorly expressed answers in relation often failed to convey the appropriate information. For the second part of the question candidates scored best when an explanation was given linked to each of the two factors required.
- c) Many candidates scored well with this question. Candidates often showed good knowledge of the development of public baths and many examples of how blue flag beaches, the Olympics and role models promote swimming today. Those candidates who scored less well did not explore the impact of public baths and mainly gave a description of them.

- d) This twenty mark question demands an extended answer. This question revealed some excellently prepared candidates. To score well candidates had to address both parts of question and tackle the idea of how character and values could be developed in today's schools. Better candidates were able to link the values to the games played eg. cricket and facing the bowler developed courage and also a captain's decision- making or leadership skills. The better candidates developed each of the points being made and used clear, concise language in an organised and planned way. Weaker candidates were too superficial in their responses and spent too much time on describing public schools before the development of character and values and before the reforming headteachers

Question 2

Comparative Studies

- a) Overall a well answered question with many candidates clearly outlining the geographical factors that affect involvement in the USA and the UK. The better candidates chose a point and then contrasted that point across both countries, for example the size of the population or the available open or wilderness land. Five marks were available for this question and candidates should ensure that they have made enough points to score full marks. Weaker candidates only outlined one or two factors and were unable to access the higher marks.
- b) This question was answered very well by many candidates although the value that seemed to pose the most difficulty was the radical ethic, with some candidates simply leaving this one unexplained. Nearly all candidates could explain Lombardianism. Many candidates were successful in describing two values that are associated with the UK. Some candidates missed this second part of the question. Candidates are reminded to attempt all parts of each question to maximise their marks.
- c) This was less well answered with candidates struggling to make valid points about the promotion of mass participation in Australia and then to compare with the UK. The more successful candidates planned their answer effectively and made a point about Australia and then immediately following this with a point from the UK.
- d) In this 20 mark question, the better candidates compared the development of the game of Rugby Union as well as its contemporary status. The development aspect of this question was not generally covered very well. The better candidates made some good points about the influence of the World Cup but often did not apply this to both countries. Candidates should bear in mind that this is the comparative section and so candidates will be asked to make points about each country and then relate these to the UK. The better candidates had planned their answers well and gave a well structured and response, often using paragraphs effectively and with few errors in spelling and punctuation.

Sports Psychology

Question 3.

Most candidates scored well for this question if they used practical examples that were required. Too many ignored the request for these examples and consequently scored few marks. This was a pity because often candidates had the knowledge but could not or forgot to apply this knowledge – a key skill required for this topic area.

Again in this question some candidates did not respond to the relatively straightforward request for a practical example in the second part of the question and therefore lost out on a valuable mark. Many could explain both state and trait anxiety although a few confused the two terms. The best candidates showed a good awareness of how anxiety might influence performance in sport.

This question was answered well by those candidates who again used appropriate practical examples. Theoretical models feature in this topic area and it is common for questions to ask for them to be explained through the use of practical examples. Most were able to give good responses for sources one and three, with fewer showing an understanding of sources two and four.

Most candidates explained well why some teams are more cohesive than others but struggled to apply psychological theories such as Steiner's. The better candidates explored how aspects of the environment, leadership and individual motivation could affect cohesion. Candidates generally found the second part of the question the more demanding and many did not apply their answers to following a healthy lifestyle or avoiding an unhealthy one. Some candidates seemed to struggle with the word 'dysfunctional' although this appears in the specification. Some candidates mis-read the question and commented on the individual's influence on the group rather than the other way round.

Biomechanics

Question 4.

Some candidates could define both angular distance and angular displacement accurately. Others only had a vague idea and a few left this question unanswered. The values estimated were generally well done with units included as is the convention. Some candidates did not include the appropriate units and therefore could not score the marks available.

Centre of mass was generally well defined and the better candidates could describe how a performer applies an eccentric force to a ball. Some candidates did not then go on to explain its effect and therefore did not have access to the full range of marks. Candidates are reminded to attempt all aspects of each question.

Candidates showed generally a good understanding of each of Newton's Laws but often this was not applied effectively to a sprinter maximising performance during a sprint start. Being able to quote these laws is often only the starting point to such questions, there is often then the requirement to be able to explain through a practical example. Most candidates drew an accurate free body diagram showing that this has been taught well in many centres. The best candidates made their diagrams clear and included all the appropriate labelling.

This was answered well by some candidates who consistently answered each part to a high standard. Some candidates fell down on one or two parts to this question and this often left them unable to access the top mark bands. Some candidates were unable to explain the first class lever but could evaluate the other types of lever. The best candidates identified strengths and weaknesses of each of the levers to show an evaluation. Weaker candidates merely described each lever and therefore scored fewer marks.

Question 5

- a) Many candidates clearly described a method of measuring aerobic capacity. The question requires only one method but some candidates gave several methods. Only the first method identified was marked because of the requirements of this question. Centres should ensure that candidates are aware that if a number of responses is requested then only that number of responses is marked. Most of those that identified an appropriate method were then able to give an advantage and a disadvantage.
- b) This was answered well by some candidates but too many gave a superficial response and therefore only scored half the marks available. Those that scored well identified both endothermic and exothermic reactions and gave more detail for each to show a good understanding of a coupled reaction using the ATP/PC energy system.

- c.)** Many candidates confused gene doping with blood doping and injections. Other than negative harmful effects on the body other points on the mark scheme were not made and so some candidates scored few marks. Many were able to identify the illegality, ethical issues and the idea of the 'superathlete' in relation to judgements about gene doping.
- d)** This question on a topical subject was answered well by many candidates who have a good knowledge of energy expenditure and energy intake but many were too superficial in their response and commented generally about the health implications of being obese. Those that used sound physiological knowledge to show how obesity actually affects involvement in physical activity scored into the top bands of the mark scheme.
- e)** The weaker candidates merely gave vague explanations of obesity but some gave good detail on the measurement of obesity. Good answers often gave recognition to psychological damage that can be experienced by obese people and then went on to explore in depth how obesity can be prevented.

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

Education and Learning

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

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OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

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