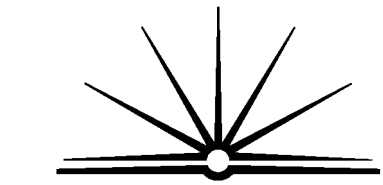

1999 HSC

Personal Development, Health and Physical Education

Enhanced Examination Report

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1999 Higher School Certificate Personal Development, Health and Physical Education Enhanced Examination Report

Introduction

In 1999, 9356 candidates presented for the HSC examination in 2 Unit Personal Development, Health and Physical Education. This was an increase on the 8890 candidates who presented for the examination in 1998.

This year's examination was well structured. The free-response questions provided the opportunity for the majority of candidates to respond in some way. The mark allocations for questions were fair and were an appropriate reflection of syllabus emphasis.

The free-response questions allowed the better candidates to display a solid and in-depth understanding of the syllabus by presenting clear and logical discussions and arguments. Some free-response questions were structured in a way which linked relevant Areas of Study. Where this occurred the links were appropriate and logical. This type of question allowed the better candidates to display their superior conceptual understanding of the course content.

The less well-prepared candidates tended to respond from a general knowledge perspective rather than using specific syllabus knowledge.

The majority of candidates elected to answer the option question on The Art and Science of Coaching (approximately 6600). This reflects the fact that this option has been, and continues to be, the most popular option studied by candidates. Again in 1999 some candidates elected to answer option questions they had not studied.

The quality of responses to the option questions were, in most cases, completed to an average standard. However, well-prepared candidates were able to provide responses which displayed their depth of knowledge and understanding. The responses to the Community Health Issues option were generally poor. It appeared that many of the candidates who answered this question had not studied the option at school.

There were approximately 30 candidates who attempted to answer more than one option question — and most of these answered at least three option questions. Although this represents a significant decrease from the number of candidates who attempted more than one option in 1998, it is still an area of concern.

HSC Marking Procedure

The Marking Process

Multiple choice answers to Section I of the 2 Unit PDHPE examination are computer processed. Sections II and III are marked by at least two independent markers from different groups at different stages of the marking process.

Marking teams are comprised of 8–9 markers lead by a Senior Marker. Each team is usually assigned one question to mark for the whole marking process. Some teams, however, have the responsibility of marking two option questions with small candidatures.

Prior to the commencement of marking, Senior Markers read a wide sample of candidate responses in order to develop a set of marking criteria. Markers participate in an extended briefing session in order to gain a shared understanding of the marking criteria. This phase of the process involves detailed discussion, sampling of further scripts, and negotiating modifications to the marking criteria as appropriate.

Once the marking criteria and standards are agreed upon by all markers on a particular question, pilot marking begins. Pilot marking indicates the reliability of the marking criteria and markers' ability to interpret the criteria consistently. When Senior Markers are satisfied that this has been achieved, first marking begins. Second marking usually begins when about two-thirds of the scripts have been marked for the first time.

If the two marks are found to be discrepant, a third marking, or in some cases a fourth marking, may take place.

Markers are given the following advice to help them in the marking process:

- Marking is a ranking process. Use the entire range of marks. Beware of fence-sitting.
- Forget personal and school standards and your memories of past papers and performances. Adhere to the marking guidelines set for this year.
- Keep to the marking guidelines and use your professional judgement. Place the script in a band first and then award a numerical mark.
- Mark positively. Mark what is there, not what is missing and don't 'take off marks' for incorrect statements. Aim for an overall impression mark after a careful reading.
- Give each script its due consideration but don't agonise over it. If you find a script that cannot easily be placed within the marking guidelines, discuss it with your Senior Marker.
- Aim for accuracy of marking, not speed.

The Clerical Operation

Each bundle of scripts has an accompanying marksheet which already has the centre number and candidate numbers on it for that bundle. Marks are recorded on these marksheets. No annotation is made on the scripts whatsoever. There is a second marksheet for the recording of marks during second marking. Both the first and second marksheets are completed independently at different times by different markers.

There are procedures to ensure that markers do not mark scripts from their own school or scripts belonging to close relatives sitting for the examination.

The confidential nature of the marking process is stressed at all times and markers do not have access to marks awarded by other markers.

The clerical operation also identifies discrepant scripts and checks the final marks sent for computer processing.

The Marker Statistics Operation

The marker statistics operation involves the following steps:

- When markers allocate a mark to a script, they place a tally mark on their tally sheet alongside that mark value.
- Markers' tally sheets are processed and statistical reports generated.

- The statistical reports are given to the Supervisor of Marking. These reports contain information on the overall distribution of marks for each question (ie mean and standard deviation across all teams marking the same question), as well as information on each marker (ie marking rate, mean and standard deviation).
- Copies of the team reports are given to each Senior Marker to help them in monitoring the marking patterns of each of their markers.

The Supervisor of Marking uses the statistical reports to monitor trends for the duration of the marking process. They are initially used in the pilot marking phase to ascertain whether the marking schemes are providing an acceptable distribution of marks for each question.

Once the marking schemes are finalised and first marking commences, the statistical reports are used to check that an acceptable distribution of marks is being maintained. The Supervisor of Marking discusses the results with the Senior Markers to ensure that any problems in applying the marking criteria are resolved consistently.

Written Paper

Section I – Multiple Choice

Questions 1 –20

The table below gives the correct answer to each question.

The overall mean of 9.26 reflected that this set of multiple choice items contained some difficult questions. This was particularly true of questions 1, 3, 7, 10 and 20.

Question	Answer	% of Candidature
1	C	23.84
2	A	49.58
3	D	16.31
4	A	73.60
5	C	33.73
6	B	79.49
7	D	22.11
8	C	52.47
9	D	64.31
10	B	14.59
11	C	64.97
12	A	73.78
13	B	28.76
14	B	78.25
15	C	51.51
16	D	41.30
17	C	64.82
18	D	36.78
19	B	36.94
20	A	17.93

Section II – Core Questions

Question 21 Analysis and Management of Community Health

Part (a) of this question was answered well and provided candidates with ample scope to clearly demonstrate a depth of understanding of an emerging community health issue. There was a wide range of issues identified; however, some issues were not indicative of key emerging community health issues studied, and therefore provided limited opportunity for candidates to discuss a range of sources of pressure for change and historical perspectives.

In part (b) a large majority of candidates took the opportunity to display a considerable degree of knowledge regarding changing age structure and urban living. However, the degree to which candidates were able to link these factors to health implications varied considerably. Better candidates demonstrated their knowledge and understanding of how discrete areas of content from the syllabus are interrelated.

(a) Select ONE emerging community health issue. Discuss sources of pressure for change AND historical perspectives as reasons for the emergence of this issue.

This question required candidates to discuss how a community health issue emerged as a result of pressure from various sources and historical factors. Most candidates were able to provide good discussion on their selected issue. In many cases, the discussion of historical perspectives and sources of pressure was good; however, the interpretation of this syllabus terminology proved problematic.

Above Average responses

The better responses selected a relevant and appropriate emerging community health issue, eg greenhouse effect, domestic violence. This provided candidates with an opportunity to discuss a broad range of sources of pressure and a strong historical perspective as reasons for the emergence of the issue. They were able to establish clear links between the emergence of the issue, sources of pressure and the historical perspective.

'The greenhouse effect is a global issue that affects health. Sources of pressure come from the dangers that this issue creates. It can result in increased sea levels, rising temperatures, flooding of coastal cities and loss of productive land. In regards to health, it will influence food and water supply, cause increased problems of ultraviolet radiation, pollution and rising incidence of communicable diseases. Issues such as these create pressure for change as people see the dangers. The historical perspective is that the greenhouse effect began a long time ago. It has developed as a result of human behaviours such as emissions from factories, increased car use, CFCs released into the atmosphere …'

The better responses were able to take a broad interpretation of sources of pressure for change; for example, impact on personal and community health, cost to the community, government and business organisations, global declarations.

'Sources of pressure for change include;

- injury is responsible for 15% of hospital admissions
- injury is preventable
- cost of ill health to the community and the individual, to pay medical bills and the health care system being put under increased strain for resources, victims of injury may be unable to work

- large link between injury, alcohol and motor vehicle accidents — road safety education
- increased accidents in the work place'

Average responses

The average responses identified appropriate issues but had poorer discussion and links to the historical perspectives and sources of pressure, and may have discussed the issue in relation to the effects on health. Candidates may also have discussed either sources of pressure or historical perspectives with a good link to the issue, with the other being treated with minimal, if any, discussion.

'Alcohol is a modifiable factor that contributes to diseases such as cancer, cirrhosis of the liver, diabetes, suicide, accidents and also obesity which is linked to many other serious illnesses such as cardiovascular disease. Australians consume an average of 20 standard drinks on a weekend (Friday – Sunday) which is a detrimental amount for health.'

'Sources of pressure have been the introduction of flotation devices, safety switches fire extinguishers, play pens, RBT units, occupation, health and safety officers and other preventative measures that have reduced the impact of accidents and injury over time.'

(b) Discuss how each of the following factors affects the use of health services in Australia

- *changing age structure*
- *urban living*

This question required candidates to display an understanding of how the two social determinants, changing age structure and urban living, have impacted on the use of health services.

Above Average responses

The better responses demonstrated a thorough understanding of each factor, as well as identifying the specific health implications related to these factors. This was followed with the application of a wide range of relevant health services, eg ageing population will result in increased incidence of CVD, injuries, hearing/sight impairment and osteoarthritis.

'The Australian population is aging dramatically. With increased life expectancy, better technology and greater resources for knowledge, Australians are living longer. This means increasing pressure is placed on an already overburdened health care system, with less financial contributions to private health insurance. Medicare, the universal and equitable system of health insurance simply will not and can not cope. As the baby boomers age, this problem with the health system will only magnify. To cope with this the government is going to have to increase the funding at a commonwealth, state and local level, both institutional and non institutional health care services are going to need more of the GDP to cope with the aging population.'

Average responses

The average responses discussed both factors but lacked depth in one factor or their understanding and appreciation of the associated impacts on health services were not evident. If candidates discussed the impact on health services, they did not establish a link to the implications that would lead to the increased use.

'Trends have indicated that the population is aging, that is the number of elderly Australians is increasing over the years. This has placed a strain on the health system, causing a rise in the

need for nursing homes. Changing the place where you live and moving to the city has also impacted on the strain of health services.'

'The changing age structure means that we have lots of older people who need to be cared for and need special treatment. Hospitals are becoming overcrowded due to the elderly needing treatment. There will be increased demand for nursing homes and home care services like meals on wheels. The government will need to provide more funding for this.'

Question 22 Analysis and Management of Community Health

This question enabled candidates to demonstrate their understanding of a specific priority area from the 'Better Health Outcomes for Australians' (1994) report. In part (a), candidates were required to discuss the reasons for either cardiovascular disease, cancer, injuries or mental health being targeted as a national health priority. In part (b), candidates were required to demonstrate their understanding of health promotion as it related to their chosen priority area.

The majority of candidates were able to discuss aspects of one priority area and identify health promotion strategies directly related to this area.

The report 'Better Health Outcomes for Australians'(1994) identifies the following priority areas for improving the health of Australians.

- *Injuries*
- *Cardiovascular disease*
- *Cancer*
- *Mental health*

Select one of these priority areas to answer both parts (a) and (b).

(a) Discuss the reasons for this priority area becoming a national health priority.

This question required candidates to select one of the priority areas and show reasons why it has become a health priority.

The majority of candidates chose either cardiovascular disease or cancer as their priority area. This provided greater scope for discussion around lifestyle and modifiable risk factors. Candidates who chose injuries as their priority area tended to focus on motor vehicle accidents, injuries to young children and the elderly, and suicide among young people. Those who chose mental health had difficulty discussing the reasons why this was a priority area.

Above average responses

The better responses discussed a range of reasons in detail with clear links to the priority area.

These included:

- relevant social determinants
- economic and/or social costs
- lifestyle factors
- preventable or modifiable risk factors
- incidence and mortality rates.

'Cardiovascular disease is the leading cause of death and sickness in Australia. In 1993, over 43% of people died from cardiovascular disease. This is of particular concern because many of the risk factors are preventable or at least modifiable. For example, high fat diet, physical inactivity, increased salt consumption, smoking and alcohol consumption. Cardiovascular

disease is a major contributor to the cost of ill health to the Australian community, both in a direct (dollars for health care) and indirect (work absenteeism and lost productivity) way.'

Average responses

Average responses concentrated mainly on incidence and/or mortality rates and modifiable risk factors.

'CVD has become a national priority because of the high number of Australians dying from the disease. This disease is mainly caused by smoking, inactivity, obesity, poor diet, stress and other lifestyle factors, all of which can be controlled.'

(b) Discuss how health promotion can contribute to achieving the goals for the priority area you have selected in Question 22 part (a).

This question required the candidates to demonstrate an understanding of the contribution of health promotion to the goals of the priority area, supported by a range of strategies.

A number of candidates relied on general knowledge and listed a range of factors with little or no discussion, or focused their responses on health promotion management strategies, health promotion frameworks or health promotion focus areas.

Above Average responses

The better responses discussed health promotion frameworks and/or focus areas. They related this to the goals of the focus area and supported their answer with an extensive range of health promotion strategies.

Some of the most common health promotion frameworks and focus areas included: the Ottawa Charter; levels of prevention (primary, secondary, tertiary); settings and focus; levels of responsibility; education; and media.

'Health promotion often involves an 'intersectoral' approach between a variety of groups in the community. In terms of CVD, the various levels for health promotion can contribute to achieving a lower incidence of the preventable disease.'

'Health promotion involves increasing the standard of living by improving health by preventing sickness and death and increasing the health status of people before morbidity/mortality strike. Preventable health is more cost effective and more efficient at maintaining social equity than curative health will ever be. However, because it does not win as many political votes or have an immediate material impact on the community, it is largely neglected by governments.'

'Achieving the goals requires use of health promotion following the Ottawa Charter.'

'This can be achieved through Building healthy public policy, which included the responsibility of State, Federal and local governments through legislation, funding and taxation. This could be done by:

- compulsory legislation to decrease passive smoking such as no smoking on public transport, workplace
- compulsory legislation of age of drinking, smoking
- legislation of food packaging — consumers must know fat and cholesterol content — this decreases prevalence of fatty foods.'

'Creating supportive environments will also promote health and achieve these goals. This could be done through non-government organisations (NGOs) such as the National Heart Foundation (NHF) providing support through areas like the approved tick for healthy foods. This creates an environment where people can quickly and easily recognise healthy foods and thus the environment supports their choice of decreasing risk factors like obesity and high cholesterol diets.'

'Developing personal skills would extend to local governments not only promoting healthy lifestyles such as exercise and no smoking through initiatives like 'Quit for life', 'Life. Be in it', but also providing people with skills to increase control over their health.'

Average responses

Average responses compiled a list or discussed in general terms a number of relevant issues relating to health promotion and/or management strategies.

'Campaigns such as 'Life. Be in it' have also been introduced to make people more active. 'Jump Rope for Heart' has been introduced in schools so that young people will learn about the benefits of physical activity and continue it throughout life. Physical activity is also a major factor contributing to cardiovascular disease, so educating young people about the benefits of physical activity has become a major part of health promotion.'

'There are three main types of health promotion. They are primary, secondary, tertiary. Primary can be used to promote healthy lifestyles to groups in the community hopefully making themselves aware of the risk factors for cancer in order to prevent them from getting cancer. Secondary can be aimed at people who show risk factors for cancer in the hope that they will modify their lifestyles before they get cancer. Tertiary is aimed at people who may have cancer promoting healthy lifestyles that may help them control their cancer.'

'Health promotion is carried out these focuses are:

- Schools — mainly in the form of lessons in the classroom. Teachers can promote healthy lifestyle choices to children at a young age and hopefully educate them on the risk factors of cancer.
- Workplace — employers can promote healthy work options to employees who are exposed to risk factors such as wearing hats and sun screen when working in the sun.
- Communities — communities can be warned about the risk factors of cancer, especially if they live in high-risk environments, eg near the beach.
- Health care settings — can give information to patients about the risk factors of cancer because people tend to pay more notice to doctors and other health professionals.
- Consumer market place — is a good place for health promotion because they can produce and market healthy or safe products, eg sun screens that give full protection from the sun and UV rays.'

Question 23 Movement Skill and Performance

Both parts of this question required candidates to have an explicit understanding of terminology used in the syllabus and apply this understanding to the stimulus information given. The specific application of knowledge was done reasonably well, although many candidates included terms and information that were not directly relevant to the situation posed by the question. Overall, both parts of the question were answered reasonably well, although the depth of understanding of some aspects was not as strong as expected.

(a) An athlete completes a 400m running event in 49.50 seconds. Describe the use of fuel in relation to the energy systems used during the performance.

This question required candidates to demonstrate a clear understanding of the relationship between fuel (creatine phosphate and glycogen) and anaerobic energy systems (ATP-PC and anaerobic glycolysis) and the role of ATP in this particular event (400m in 49.50seconds).

Above Average responses

Better responses included an understanding of the resynthesis process in relation to energy systems, as well as relating the role of ATP to the particular event.

'When ATP-PC system is used, one of the phosphate groups breaks away from the ATP molecule to form ADP. The breaking of the high energy bond releases an immediate burst of energy which causes muscle contraction. When ADP is formed, it must be reassembled for exercise to continue. The fuel for this system is creatine phosphate'

'In the lactic acid system, stores of muscle glycogen break down, without oxygen, to produce pyruvic acid, ATP and lactic acid …'

Better candidates were also able to identify the aerobic system as making a small contribution during the 400m event.

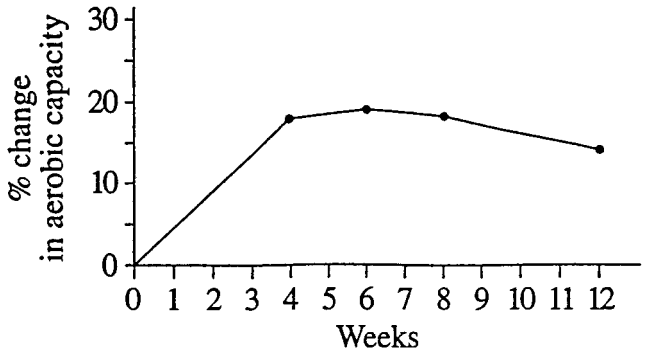
Many candidates were able to discuss the anaerobic glycolysis system in detail but made poor attempts to explain and link this to other systems or the actual event.

Common difficulties displayed by candidates included:

- understanding the meaning of the word 'fuel'
- a realisation that 49.50 seconds for the completion of a 400m event is incredibly fast and requires the body to work at very high intensity.

(b) A group of inactive adults were given half an hour of aerobic training five times per week for four weeks. Following this, the group trained only twice a week.

The graph below represents the change in aerobic capacity of the group over the 12 weeks.



Use the principles of training and the basis of aerobic conditioning to explain these results.

This question required candidates to give a clear explanation of how training and aerobic conditioning produced the results shown in the graph. Candidates needed to make reference to the principles of overload, specificity, reversibility and FITT.

The graph challenged the candidates to relate the correct principles of training. Many candidates included a discussion of aspects that were not relevant, such as warm up and contra-indicated exercises.

Above Average responses

The better responses used the FITT principle to link overload, specificity and reversibility principles to aerobic conditioning. They made frequent references to the graph in their explanation.

'A main principle of training evident was reversibility. The application of the FITT principle in the first four weeks increased aerobic capacity, however, because the frequency was reduced to twice a week, the aerobic capacity has decreased due to the reversibility principle.'

The better responses also identified the principles of training in relation to the graph.

'During the 4 week period of intense training, the group made large improvements in their aerobic capacity. For this to have occurred, the FITT principle, progressive overload, specificity and training thresholds must have been adhered to. The FITT principle has been applied to this group as there has been structured frequency (5 times a week), intensity, time (30 mins) and type (aerobic) for the exercise.'

Average responses

Average responses correctly identified the principles of training but did not apply them appropriately to the graph. The majority of these responses explained various principles; however, links to the graph were weaker. FITT principles were often not explained accurately in relation to this graph. A knowledge of principles was used in isolation by a number of candidates.

'The initial increase was constant due to the fact that progressive overload training was involved. The last 6 weeks caused a decrease in their aerobic capacity due to reversibility.'

'The principle that is highlighted the most in the graph is reversibility, which revolves around the idea that, should one cease exercise or reduce activity or training, the effects or change from the training will be reduced. The slower one improves, the slower they decrease.'

Question 24 Movement Skill and Performance

This question presented a reasonably straightforward examination of candidates' knowledge and understanding of this area. Generally, each part of the question was well answered, with candidates able to identify and address the relevant key areas.

(a) Outline how an athlete uses psychology to improve performance in competition.

This question required candidates to provide an overview of the major psychological strategies that are appropriate for an elite athlete to use. Candidates were expected to show how these strategies would enhance performance.

Most candidates were able to identify that an athlete is operating at the autonomous stage of skill acquisition, and in most cases would have undergone the necessary physical preparation to perform at this level. Consequently, the importance of psychological interventions to maximise performance was highlighted.

Above Average responses

The better responses identified a broad range of psychological strategies and clearly showed how each could lead to enhanced performance.

'To perform at their best it is important that the athlete reaches the optimum level of arousal for their event. Depending on their personality type and the specific situation this might involve going through a relaxation routine. For others it may mean listening to a coaches instructions to focus attention and be more aware of the task at hand.'

The better responses provided clear explanations of techniques such as visualisation, mental rehearsal, goal setting, positive self-talk, intrinsic and extrinsic rewards, and other sources of motivation.

'Visualisation involves seeing yourself complete all aspects of a performance correctly. By gaining a clear and positive picture of your performance you will be mentally ready to give your best performance. If you have doubts about your ability to succeed it is unlikely that you will show your potential.'

Better responses also showed that psychology was more than something to consider in the minutes prior to performance. In a number of cases, they showed its relevance to training, competition and post-competition phases.

'The setting of short and long term goals can have a motivating effect for the elite athlete. As short term goals are achieved, the desire to continue to work towards improvement remains high. The chance of finally achieving long term performance goals is improved.'

Average responses

The average responses fell into two major categories. Candidates either:

- provided a clear but narrow description of psychology and its relationship to performance; or

– identified and defined a broad range of psychological strategies with limited explanation of how they impact on performance.

'Motivation is what drives you to achieve your goals, both internal satisfaction and external rewards that you may get.'

'Using mental imagery, thinking about what has to be done improves the athletes confidence.'

(b) Explain how body temperature is regulated during physical activity.

This question required candidates to identify the body's thermoregulatory responses during physical activity and explain how each helped to maintain optimal core temperature. Most candidates demonstrated familiarity with a broad range of thermoregulatory responses.

Above Average responses

The better responses showed a clear understanding of the thermoregulation process. They included an explanation of the role of the hypothalamus in detecting variations in core body temperature and triggering appropriate responses. Typically, they differentiated between action related to heat loss and heat gain situations. They provided a detailed explanation of three or more means of maintaining heat balance, such as vasodilation, vasoconstriction, shivering reflex, convection, conduction, radiation and evaporation. Additionally, they referred to various ways that individuals could support the body's attempt to regulate heat including hydration, wearing loose clothing and applying ice.

'The hypothalamus is the body's thermostat, signalling when the core temperature varies from 37 degrees. During physical activity, muscles contract resulting in an increase in temperature. When exercising in a cold environment such as water, the body may lose heat due to conduction.'

'To warm the body, vasoconstriction occurs. This limits the flow of blood to the surface of the skin where temperature can be lost. Involuntary muscle contraction, shivering, may also occur resulting in heat production. The athlete can reduce temperature loss by wearing a cap, wetsuit or warm clothes. As body temperature rises, sweating occurs. This allows water to take heat to the skin surface. As the water evaporates, it has a cooling effect on the body. You will need to take in water regularly to ensure body fluid levels are maintained.'

Average responses

Average responses typically limited their answer to how the body removes heat. They identified three or more thermoregulatory responses but were less able to explain how each helped maintain heat balance. In most cases they showed a lack of understanding of the scope of thermoregulatory process.

'Conduction occurs when heat moves from one surface to another. Convection is where a cool breeze blows on the skin. Heat can also be radiated into the air.'

(c) Compare personal and prescribed criteria as methods of judging the quality of performance.

This question required candidates to show similarities and differences between these two forms of criteria. Most candidates were able to identify the significance of subjective and objective forms of appraisal in their answer.

Above Average responses

The better responses provided a comprehensive comparison that included reference to three or more points of similarity or difference. Domains for comparison included the qualifications of judges, the purpose of the appraisal, the subjective or objective nature of the criteria, who establishes the standard, validity and reliability and the way in which results are communicated and interpreted. Some of the better responses showed different contexts in which each form of criterion would be most appropriate.

'Personal criteria can be appropriate for an individual attending a dance performance. The individual appreciation of the performance is based on the overall impact it has on them. When judging in competitions, prescribed criterion helps to gain consistency and accuracy, and is more reliable and valid. This may involve the use of rating scales and checklists, and the inclusion of compulsory movements and allowance for degree of difficulty.'

'Prescribed criteria has a number of advantages. Judges and competitors know in advance what the criteria is. Over time the judge learns how to use the criteria and what things to look for in a performance and gives it the marks it deserves. The result is a judgement that is valid, consistent and based on an accurate assessment of skill level. Competitors refer to the criteria when practising to make sure that their performance meets the requirements of the criteria. Personal criteria is far too open to interpretation and depends on the ideas the judge brings to the performance.'

Average responses

The average responses were more limited in breadth and depth of their comparison. Most candidates focused on the subjective and objective nature of criteria and how personal criteria were open to bias.

'The difference between personal and prescribed criteria as methods of judging is that personal criteria is based on your view compared to prescribed criteria which decides what the performance was worth on a scale.'

Section III – Option Questions

Question 25 Community Health Issues

This question was generally poorly answered. Many candidates answered the question, even though it appeared they had not studied this option as part of their HSC course. Most candidates attempted part (a) but many candidates answered part (b)(i) and (ii) poorly or not at all.

(a) Describe and justify the fieldwork techniques you would use to determine the health status of a school community.

This question required candidates to describe a range of fieldwork techniques that could be used to determine the health status of a school community. Most candidates showed a basic understanding of fieldwork techniques. However, they did not justify the use of these in determining the health status of a school community.

Above Average responses

The better responses provided an accurate, detailed description of a variety of fieldwork techniques and explained how each could be applied to determine the health status of a school community. Knowledge of the broader school community was evident in these responses.

'Initially, to analyse health status, an observation of the social and physical facilities available in the school environment, eg seating, canteen, toilets, bubblers. It is then appropriate to proceed with interviews to achieve a better idea of the extent of the health issues. Interviews conducted should include people of different roles within the population, eg teacher, candidates, canteen and office staff.'

Average responses

The average responses tended to include general descriptions of fewer fieldwork techniques, making some link to their appropriate use in a school community.

'My interviews would be a structured interview as it is easier to compare people's answers. I would interview the teachers and the parents because they would provide me with more appropriate information than children.'

(b)(i) Briefly describe a special population that is representative of the local area you have studied. Discuss the responsibilities for managing the health problems of this group.

This question required candidates to identify and explain responsibilities for managing health problems of a special population. It was apparent that many candidates were confused by this question. They described the general health problems of a local area, rather than focusing on the health problems of a special population within a local area.

Above Average responses

The better responses briefly described a special population and identified various levels of responsibility for managing the health problems of the group.

'Ultimately this special population of migrants has responsibility for their health. That is, each individual is primarily responsible for their own health status. But an individual can't be responsible for themselves without education, support services and government intervention.'

Average responses

Average responses identified a specific population, but demonstrated a limited understanding of management responsibilities.

'Communities have an obligation to set up facilities for the children in order to educate them of the harms that surround them or that may affect them in their future.'

(b)(ii)Recommend facilities and services needed to improve the health of this group. Discuss reasons for your recommendations.

This question required candidates to recommend facilities and services and explain how these would benefit the health of the group mentioned in (b)(i). Most candidates were able to list some facilities and services. However, they were not able to link these to improving the health of the special population identified in (b)(i).

Above Average responses

The better responses were able to relate and link their facilities and services to the population whose health they were trying to improve.

'Support groups would be a positive step towards increased health literacy in the migrant population. Meetings at local community centres for migrants would increase health knowledge.'

Average responses

The average responses referred to a number of facilities and services. They had some links to the special population but tended to be general in nature.

'Community van that goes through the streets offering free immunisation to disease would be good.'

Question 26 The Sociology of Games and Sports

This question generated a range of responses, some of which appeared to indicate that candidates had not studied this option. The nature of the question enabled the better candidates to demonstrate a depth and breadth of knowledge and understanding while the poorer responses focused on current topical issues.

(a) Describe the historical influences on the development of Australia's sporting identity.

This question required candidates to describe a range of factors that influenced the development of Australia's sporting identity. Responses to this question demonstrated varied understanding of the term 'historical'.

Above Average responses

The better responses clearly identified the early settlers as British, from a sport-loving nation. They were able to describe a range of influences and discuss how these have helped Australia to develop its sporting identity. These responses also discussed the historical role of sport in maintaining social barriers. The better responses also addressed the role of women, clearly identifying their role as limited.

'Most of the first settlers were from the sport loving country of England and were mostly males with few family commitments. These aspects and the fact that Australia's climate was conducive to sport contributed to its development.'

'Sport was valued as a means to preserve British customs, promote competition, particularly self discipline and mateship and produce socially desirable citizens.'

'Any women who wished to participate found their clothing too restrictive. However, a few did become involved in non-contact sports like tennis and croquet.'

Average responses

Some average responses provided relevant information; however, the discussion tended to be limited. Other responses provided good discussion of a limited number of historical influences and included reference to the value of role models such as Sir Donald Bradman and Betty Cuthbert.

'Australia's sporting identity was developed early in the establishment of colonies. The English brought over their traditions such as cricket and rugby union.'

'There was definitely a 'manly'attitude within the colonial life therefore sport was seen as important.'

(b) In recent times, the value of sport in Australian society has been challenged by sections of the community. Discuss the reasons for this trend, with reference to:

- *politics in sport*
- *competition in sport*

This question required candidates to discuss the impact of both politics in sport and competition in sport in changing community perceptions about the value of sport. Most candidates provided some relevant information in both areas.

Above Average responses

The better responses were able to discuss a range of political incidents, referring to boycotts, apartheid, propaganda, nationalism and sporting success equating to political success. These responses were supported with relevant and varied examples.

'The success of a sporting team is often taken to indicate the success of a certain (political) system. For example, the sporting successes of the former Soviet Union were taken to indicate the success of communist regime.'

'For example, the 1968 Mexico City Olympics, black American athletes protested on the victory dais barefoot, with bowed heads and raised fists against racial discrimination in America.'

When discussing competition in sport, the better candidates were able to demonstrate a clear understanding of related issues. Relevant links were drawn to aggression and violence, drug use, motivation, restriction as a result of specialisation, cheating and the negative influence on children.

'Competition in sport often leads to aggressive behaviour and a win at all cost attitude in children instead of teaching them morals, cooperation and team work.'

'Due to competition athletes are increasingly using ergogenic aids to enhance their performance.'

Average responses

The average responses tended to provide good discussion of either politics or competition with relevant examples, and were less comprehensive in the other area, or provided average discussion of fewer aspects in both politics and competition.

(c) Discuss how community attitudes have influenced the participation of women in physical activity.

This question was generally poorly answered.

Above Average responses

The better candidates supported their responses with appropriate examples of issues such as historical perception of femininity, sport as male dominated and the unsuitability of the female anatomy. Some discussion was based on the media attention afforded to women in sport. The better responses also discussed the changing community values leading to some progress, citing the value of role models, health promotion initiatives and female-only gyms as contributing factors.

'Typically, women were seen as meek and fragile. Not values associated with participation in sporting pursuits.'

'Women have had a lack of access and opportunities in sport due to previously held views and stereotypes.'

Other areas of discussion included the percentage of media attention to women in sport and the focus of related reports.

'Often when women's sports are made mention of it is comments on body physique and family connections as opposed to emphasis on the woman's actual skill.'

Average responses

The average responses provided limited discussion of a few relevant points.

'Women have fewer role models and boys are more encouraged by their fathers to play sport.'

'Boys dominate the playground limiting the girls' involvement.'

Question 27 Two social health issues – Drug use and HIV/AIDS

This was a three-part question and, in many cases, candidates did not manage their time appropriately between the three parts. Part (a) was generally well answered, while parts (b) and (c) received somewhat superficial and brief treatment.

(a) Discuss the impact of drug-use problems on the community.

This question required candidates to identify the various drug-related problems and discuss their impact on the community.

Above Average responses

The better responses provided a range of drug-use problems and highlighted both economic and social forms of impact on the community. Social impacts included domestic violence, breakdown in relationships and an increased fear in the community as a result of increased crime. Some responses discussed initiatives such as shooting galleries and needle exchange programs and their impact on the community. The discussion of economic impacts included issues such as increased cost of health services, health promotion as a result of motor vehicle accidents, rehabilitation costs, the years of life lost, destruction of property and resulting increases in insurance.

'Drug use is also a resulting factor in a lack of productivity in the work place. It seems many workers smoke during paid hours rather than doing their job. As well as this, the performance of workers is often unsatisfactory due to hangovers, being under the influence or having to take time off work as a result of physical problems caused by drug use. This eventually will lead to the loss of productivity of our nation.'

Average responses

The average responses identified a limited range of drug-use problems. The ability to link these to the impact on the community was poor. The focus of their discussion was on drug-use problems rather than their impact on the community. It was noticeable that candidates in this range were less knowledgeable about the range of economic and social impacts of drug-use problems on the community.

'Using drugs can cause people to become violent, uncontrollable, sick, hallucinate. It can cause family relationships to break down due to stress or money. Safety on the roads is affected by drug use, as you are more likely to have an accident if under the influence of drugs.'

(b) Outline the types of support structures required by people affected by HIV/AIDS.

The question required the candidates to outline the types of support structures required by people affected by HIV/AIDS. Overall, the responses were limited in their knowledge of

support structures. Rather, candidates addressed examples of ways to support people affected by HIV/AIDS.

Above Average responses

The better responses provided good discussion of available support, identifying specific areas such as medical, social and financial support. These responses demonstrated a knowledge of specific agencies which could provide support, such as PLWA, ANKALI and CSN, and were able to describe the support services offered by these agencies. Some responses linked the support required to the three stages of HIV infection.

'Financial support is necessary to pay for treatment such as the drug AZT and for medical bills and insurance.'

'The quilting project acts as a grieving process for those who are left while lovers, friends and family die'.

'Government health services fund the research and production of the drug AZT which is usually needed in the acute lymphodenopathy stage.'

Average responses

The average responses provided a more general discussion, which typically addressed the need for emotional and/or medical support, with responses identifying family and friends as the support agent.

'Once a person has AIDS they may need counselling regularly as they could experience a loss of companionship and develop a sense of loneliness, because people want to stay away from others who have AIDS. Only their family will support them and make them feel good about themselves.'

(c) Describe the individual implications for a person living with HIV.

This question provided candidates with the opportunity to describe a range of individual implications for a person living with HIV. Most candidates, however, did not fully explore the implications, with their discussion focusing on the physical symptoms and the need to deal with emotions such as anger and denial.

Above Average responses

The better responses provided a good description of a range of individual implications addressing social, economical, physical and emotional factors. These responses linked the various implications to the stage of the disease.

'The financial burden for a person who may have to stop work or reduce hours effects the individual significantly. A course of AZT costs around $30 000 a year and this will only slow the virus down.'

'If a person has a sexual partner they are required by law to tell them of their HIV status.'

Average responses

The average responses described the course of HIV infection and identified only the physical symptoms as the implications.

'AIDS and related conditions when the patient becomes ill from other diseases due to a failure in their immune system. Patients will face discrimination and will need to pay more money for medicals.'

Other average responses made a brief list of implications for a person living with HIV but did not give an explanation or description.

'May not be able to work, friends won't understand the circumstances, need someone to look after you, fear of infecting others.'

Question 28 Human Movement Analysis

EITHER

Part A Biomechanics of Human Movement

This question was attempted by fewer candidates than in 1998. Parts (a) and (c) were generally well answered while part (b) saw candidates struggle to provide any depth in their responses that reflected biomechanical applications. Part (c) provided a variety of responses, with many candidates showing good application of a number of biomechanical principles to the diving example. Part (a) also indicated a good depth of knowledge, with many responses providing good examples to describe the stability/mobility relationship.

(a) Describe how centre of gravity affects the relationship between stability and mobility. Give two examples to support your answer.

This question required candidates to describe how centre of gravity affects the relationship between stability and mobility, using examples to support their description.

Above Average responses

The better responses gave in depth descriptions of stability related to the centre of gravity. They explored in detail the relationship between stability and mobility and used excellent sporting examples to support their answer.

'To maintain good stability a gymnast can lower their centre of gravity over a stable base of support. They can do this by crouching, maximising stability but reducing mobility.'

'When the centre of gravity is moved outside the base of support the athlete is less stable. For example, a swimmer will lean forward on the starting blocks sacrificing stability as the centre of gravity moves, but increasing mobility to start quickly.'

Average responses

The average responses were able to give good detail surrounding stability and centre of gravity but were unable to explore the relationship to mobility in any depth.

'A person is more stable if their centre of gravity is low and they have their feet spread on a wide base.'

'A bike is stable when it is moving quickly, if it stops it becomes unstable.'

(b) Explain the role of occupational biomechanics in reducing injury.

This question required candidates to identify situations where injury occurs and then explain the role of biomechanics in reducing injury in the workplace.

Above Average responses

The better responses explored a variety of work situations and provided explanation of the role of biomechanics in reducing injuries within these.

'Lower back injuries are commonly caused by incorrect lifting techniques. Loads should always be lifted by bending the legs and keeping the spine straight. By using large muscle groups and the principle of summation of forces, the pressure is taken off the spine and is evenly distributed through the body resulting in less chance of injury to the back.'

'Injuries such as back and muscular spasms and RSI can be reduced by correct posture and sitting techniques, eg when sitting at a computer, angular forces that lead to muscle strain can be reduced by having elbows closer to the body. Similarly if the screen is at eye level, the neck is less likely to be over extended by more evenly distributing the support through the spine.'

Average responses

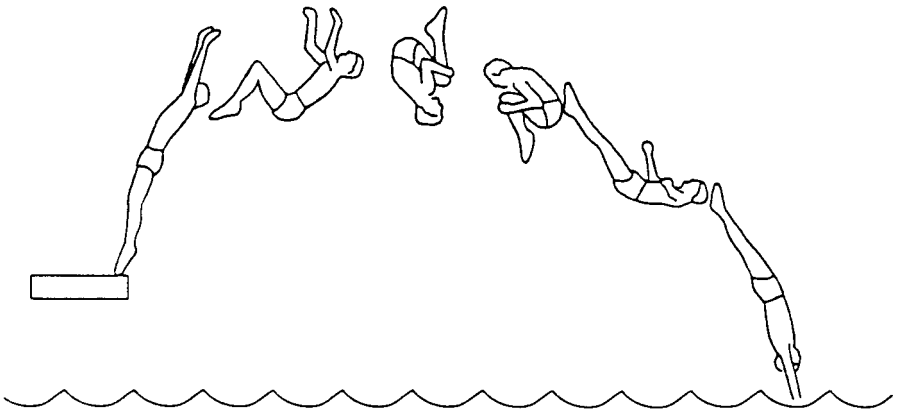
The average responses tended to be general in their examination of injury reduction and discussed occupational techniques without referring to biomechanical principles.

'When lifting you should use your legs and always keep your back straight.'

'People who sit all day should not slump but sit straight. They can even have a back support in their chair.'

'If you have to carry a load that is heavy, use a block and tackle or partner lifting.'

(c) The figure below illustrates a diver leaving the boards and performing a tucked one and a half somersault.



Describe the biomechanical principles that apply to the successful performance of this dive.

This question required candidates to conduct an analysis of the diving sequence in order to identify and describe the biomechanical principles involved. Most candidates were able to identify a variety of biomechanical principles applying to the dive or, at least, explain some technical aspects of diving.

Above Average responses

The better responses described a variety of biomechanical principles including Newton's Laws of motion, moment of inertia, angular velocity, angular momentum, projectile motion and torque, and applied these well to the dive. It was evident from the responses that candidates had studied this area in depth.

'Conservation of momentum — the distance from the axis when turning is inversely proportional to the velocity. To complete the somersault the diver moves into a tuck position, decreasing radius and increasing angular velocity. As the diver opens out, the radius is increased along with inertia, allowing a vertical entry.'

'As the diver leaves the board, Newton's Third Law of motion comes into play. The action of the diver on the board is reciprocated with the board providing the force on the diver, increasing torque and angular momentum into the dive.'

Average responses

The average responses tended to discuss the skill of diving without providing specific biomechanical principles. Alternatively, other average responses discussed biomechanical principles in general terms with limited application to the diving example.

'The diver must jump high and at an angle so they can spin fast enough with enough time to get the somersault completed and have a vertical entry.'

'When moving through the air, the centre of gravity remains constant and looks like a projectile. Projectiles make a parabola and are acted on by constant gravitational force. This gravitational force is at 9.8m/s and is added to by air resistance acting on the projectile.'

OR

Part B Applied Anatomy, Exercise Physiology, Principles of Training and Fitness Testing Protocols

This question was answered very well, which indicated that candidates studying the option had done so in depth. Part (a) saw most candidates address the relationship between prime movers, synergists and stabilisers well; however, the concept of synergy confused many candidates prompting a wide variety of responses. Part (b) was generally answered well with most candidates providing a variety of descriptions of levers as implements. Part (c) saw many candidates provide good detail of general physiological differences between trained and untrained individuals but many had difficulty with an accurate PWC 170 protocol.

(a) Describe the relationship between prime movers, synergists and stabilisers when kicking a ball positioned on the ground.

Above Average responses

The better responses accurately identified appropriate muscles in each category and provided detailed knowledge of muscle anatomy. They also provided a description of the relationship between the three categories of muscles with specific reference to kicking the ball on the ground.

'The quadriceps group is the prime mover (agonist) comprising the rectus femoris, vastus lateralis, vastus medialis and intermedius, while the thigh adductors are the synergist assisting the prime mover to keep the leg straight.'

'The rectus abdominus and erector spinae group are stabilisers and these keep the body upright and solid during the contact.'

'As the prime mover causes the lower leg to extend the gastrocnemius and tibialis anterior act as stabilisers to lock the ankle at the point of contact.'

Average responses

The average responses identified appropriate prime movers and stabilisers but confused the concept of synergist. These responses applied the relationship between the three categories of muscles in general terms only.

'The quads are the prime movers and the antagonist hamstrings are the synergist because they lengthen in the movement.'

'The prime movers cause the action, the synergist helps the muscle do the job and the stabiliser helps to keep you steady to kick the ball.'

(b) Describe how implements are used as levers.

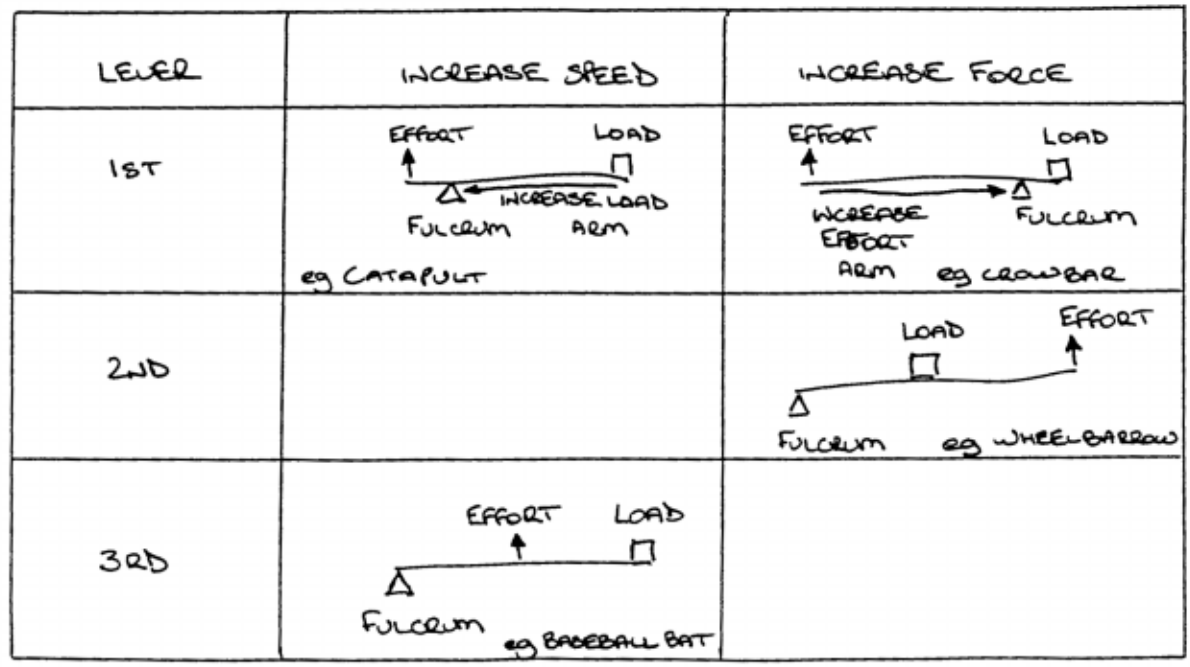
Above Average responses

The better responses comprehensively described classes of levers and demonstrated superior knowledge of the mechanical advantages gained by the use of implements as levers. Many examples of implements and appropriate diagrams were included in the better responses.

'Implements can be manipulated by the individual to gain mechanical advantage. For example when using a cricket bat, a beginner who is concentrating on accuracy and perhaps power

rather than speed may be asked to grip the bat further down the handle. However the athlete who desires greater speed would grip the bat higher and gain increased speed.'

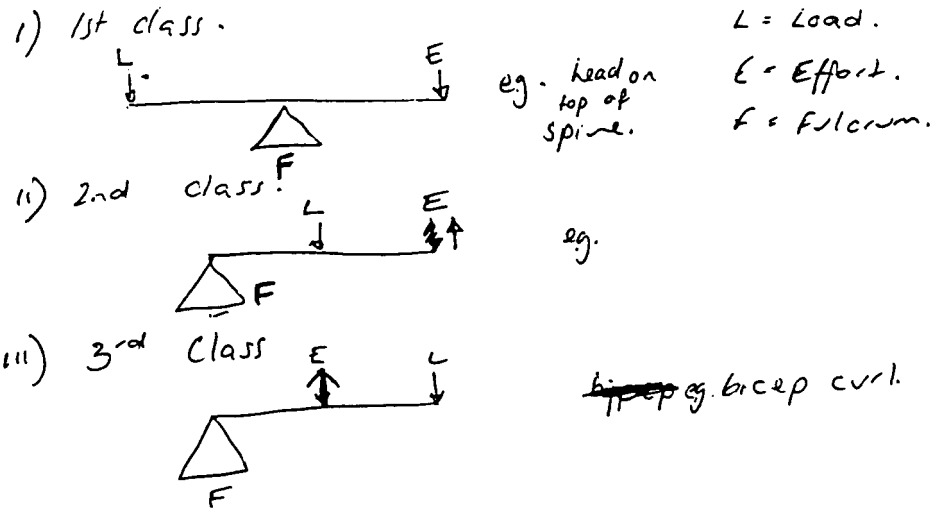
The use of diagrams to support answers was a strong feature.



In above average responses candidates provided a clear link between mechanical advantage and each class of lever when applied to implements.

Average responses

The average responses tended to simply identify the classes of levers and any attempts to discuss mechanical advantage did so using the human body as examples, without addressing implements in any detail. Implements were discussed in simple terms only.



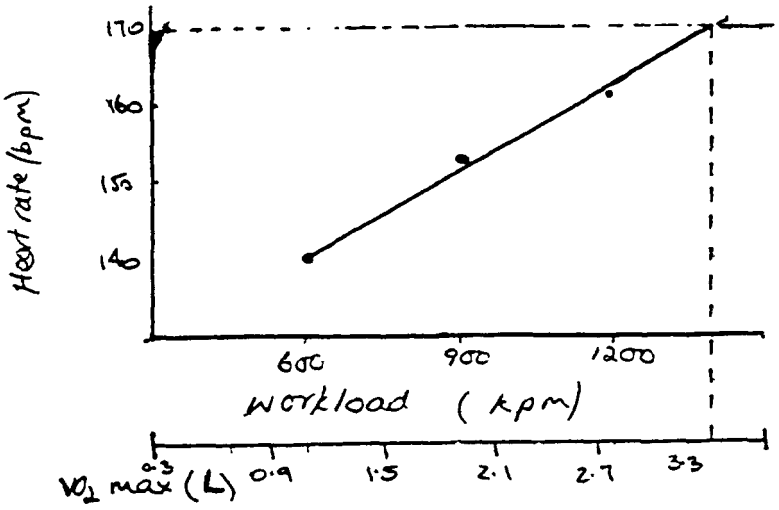
'Hitting a tennis ball with a tennis racquet will cause it to go further than if you hit it with your hand.'

(c) Describe the protocol for the PWC 170 bicycle ergometer test. Predict the differences in the PWC 170 test results for a trained and untrained individual.

Above Average responses

The better responses clearly and accurately described the PWC 170 protocol and predicted, with good discussion, differences between the trained and untrained individual. These responses also made specific reference to VO_2 max and percentage heart rate to workload ratio. The better responses were also able to elaborate on the predicted differences between the test results of trained and untrained individuals and linked this directly to the protocol.

'Physical working capacity is calculated by using a graph. The heart rates are plotted at regular intervals lying between 140 bpm and 170 bpm reflecting periodic increases in workload. A line of best fit is then extrapolated to intersect with 170 bpm. This intersection is then dropped vertically to predict VO_2 uptake.'



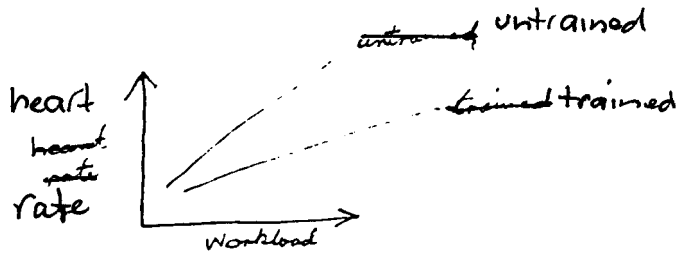
'A trained individual will have a predicted VO_2 max of 75ml/kg/min where an untrained individual will have a predicted VO_2 max of 35ml/kg/min. This is due to the lower heart rate to workload ratio.'

Average responses

The average responses gave clear detail in either PWC 170 protocol or the differences between trained and untrained individuals without relating them to each other.

'The differences between trained and untrained individuals will be great. There are four main differences they include; the trained individual having higher haemoglobin levels, greater utilisation of oxygen, higher thresholds and higher cardiac output.'

'The PWC 170 test is used to predict a person's aerobic capacity. You use the person's heart rate and weight against nomograms to get a VO_2 value'



Question 29 The Art and Science of Coaching

This question was in two parts. Part (a) provided a wide range of responses. Part (b) presented some difficulties for candidates. In (b)(i) many were unable to address fully some of the focus areas within the question — specifically, the playing of sport for enjoyment and social reasons and the role of the coach. In (b)(ii) many candidates did not describe aspects of planning and organisation as outlined in the syllabus.

(a) Outline how a coach can ensure the safety of players during training.

Most candidates were able to focus on the coach's technique and the importance of warm-up and cool-down as strategies for injury prevention.

Above Average responses

The better responses were able to identify and outline a range of player safety considerations and clearly identify strategies to be used by the coach to reduce the risk of injury.

'Besides being accredited as a coach of a particular sport, the coach must have a thorough knowledge of first aid and be able to apply first aid to players should the need arise.'

'The coach must ensure that all equipment required for training is free from damage or defects and is safe for use by players. As part of the coaching plan, regular safety checks of the playing surface and equipment should be carried out to ensure players are not at risk of injury during training.'

'The coach should ensure that players are well hydrated during hot/humid weather and that the intensity of training is modified to suit the weather.'

Average responses

The average responses often featured strong discussion on aspects of coaching technique such as warm-up and cool-down, but lacked depth in the strategies a coach could use. Candidates had a tendency to list strategies, but these were not supported by relevant examples.

- ensure no harmful exercise takes place
- promote safe practice
- know the individuals
- show players how to stretch properly

(b) You are the coach of a local under-15 sporting team that plays for enjoyment and social reasons.

(i) Describe the roles you would adopt to be an effective coach of this team.

This question required candidates to discuss a wide variety of roles that the coach may undertake and characteristics that constitute an effective coach for this under-15 team. Most candidates were able to provide good descriptions of roles or characteristics of the coach but were unable to provide the relevant or appropriate links to the enjoyment and social reasons for the team members' participation.

Above Average responses

The better responses discussed a broad range of roles, explaining how each was appropriate to this specific sporting team and incorporated discussion of the specific syllabus characteristics of an effective coach and appropriate coaching styles.

'A coach takes on many roles. For under 15's the following roles are most important. The coach needs to be; a friend with good interpersonal skills — the kids want social interaction and will work best under a coach who is very personable and co operative. A coach who acts as a friend, speaking on friendly terms with the athletes will establish a better relationship and create a supportive learning environment … this style of coaching is best characterised by a democratic style.'

Average responses

The average responses tended to answer the question in one of the following ways:

- provided a good description of some of the roles of the coach but did not include detailed explanation of the characteristics of an effective coach; or
- they concentrated solely on the characteristics of an effective coach or the style of a coach with only minimal reference to the actual roles the coach may perform; or
- described the styles of coaching but provided minimal reference to the roles and characteristics of the coach.

'There are a number of roles that a coach may undertake — motivator, planner, instructor, supporter, friend ...'

'Knowledge: is able to coach and provide players with his knowledge of the game … must be able to instruct and correct players technique yet allow players to learn through participation and enjoyment of the sport.'

'The coaching style I would adopt for this team would be that of a democratic coach … as they are playing for social and enjoyment reasons.'

(ii) Discuss how your planning and organisation at training will be influenced by the team's reasons for participating. Provide examples to support your discussion.

Candidates experienced some difficulty in fully addressing the question. Often discussion focused upon the structure of the training session or techniques used when coaching, with limited use of relevant examples.

Many responses outlined several strategies such as practice methods, practice time, reinforcement and feedback, or provided an overview of a training session. It should be noted that many candidates did not relate discussion to the specific team mentioned in the question.

Above Average responses

The better responses related very specifically to the team members' reasons for participating and discussed how the aspects of planning and organisation could be applied to train the team. The inclusion of excellent examples of planning and organisation, along with other relevant examples such as variety, practice methods and the structure of the training session, was typical of these responses.

'Balance in the session is essential. Too much emphasis on fitness and not enough on other aspects will create boredom and little enjoyment. Lots of partner work or group work instead of individual work will provide enjoyment and social interaction.'

Average responses

The average responses were able to discuss the organisation of training based upon a variety of group work and could link these to the team's reasons for participating, but did not use specific syllabus terminology in relation to planning and organising. The discussion often demonstrated knowledge of the structure of a training session. This same level of knowledge was not evident in relation to organisation and planning.

'As a coach I would use lots of different approaches so that the team would be able to socialise and have fun. Lots of minor games and competitions during training, massed and distributed practice after the warm up.'