Ascham School

2021
Higher School Certificate
Trial Examination

Student Number | | | | | | | | | |

Personal Development, Health and Physical Education

General Instructions

- Reading time – 5 minutes
- Working time – 3 hours
- Write using black or blue pen
- Write your student number at the top of every page
- Use a separate answer booklet for each part of each question in Section II eg. 29a in one booklet, 29b in a separate booklet

Total marks – 100

Section I – Pages 3- 19

60 marks

This section has two parts, Part A and Part B

Part A – 20 marks

- Attempt Questions 1–20
- Allow about 40 minutes for this part

Part B – 40 marks

- Attempt Questions 21–28
- Allow about 1 hour and 10 minutes for this part

Section II – Page 20

40 marks

- Attempt TWO questions from Questions 29–33
- Allow about 1 hour and 10 minutes for this section

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Section I

60 marks

Part A- 20 marks
Attempt Questions 1-20
Allow about 40 minutes for this part

Use the multiple choice answer sheet for Questions 1-20

---

1) Carbohydrate loading would best be used by which athlete?

A. Surfer
B. Lawn Bowler
C. Marathon Runner
D. Discus thrower

2) What is angina?

A. A temporary loss of blood supply to the heart.
B. A build-up of plaque on the interior walls of arteries.
C. A blockage in the vessels that supply blood to the brain.
D. An obstruction of the blood supply to the arms and legs.

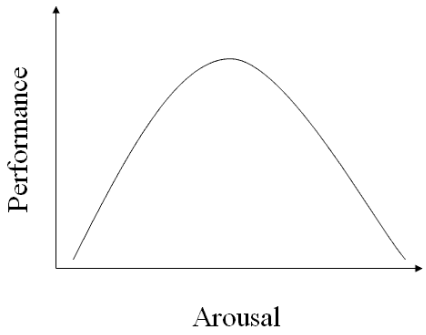
3) Smoking in a restaurant is prohibited. Which action area of the Ottawa Charter does this best represent?

A. Developing personal skills
B. Reorientating health services
C. Building Healthy Public Policy
D. Strengthening community action

4) Low educational attainment has been identified as a risk factor for Dementia in some Australians. What health determinant most affects this risk factor?

A. Environmental
B. Physical
C. Sociocultural
D. Socioeconomic

5) What can most likely contribute to over arousal in an athlete?



A. Lack of motivation
B. High anxiety levels
C. Low levels of stress
D. Task of low complexity

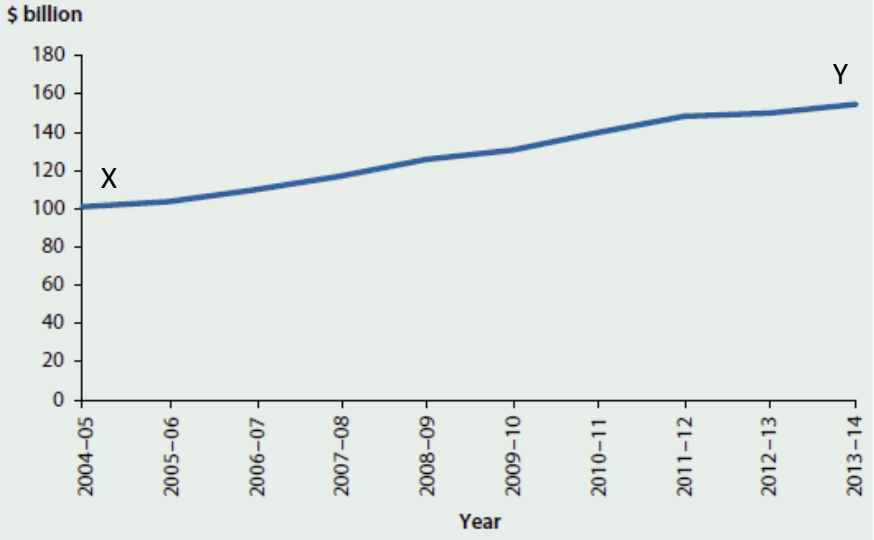
6) Which identifies the most reliable measures of the health status of Australians?

A. Life expectancy, hospital admissions, infant mortality rates
B. Private health insurance, Medicare, public hospital waiting lists
C. Infant mortality, life expectancy, morbidity rates
D. Fitness levels, life expectancy, infant mortality

7) What best explains social justice principles when identifying priorities in health issues?

A. The most prevalent conditions effect more people.
B. Population groups with poorer health outcomes receive targeted resources.
C. Health issues with high cost to the community will affect only a few people.
D. Early intervention and prevention will reduce incidence of common conditions.

8) Observe the following graph showing health expenditure in Australia over a decade.



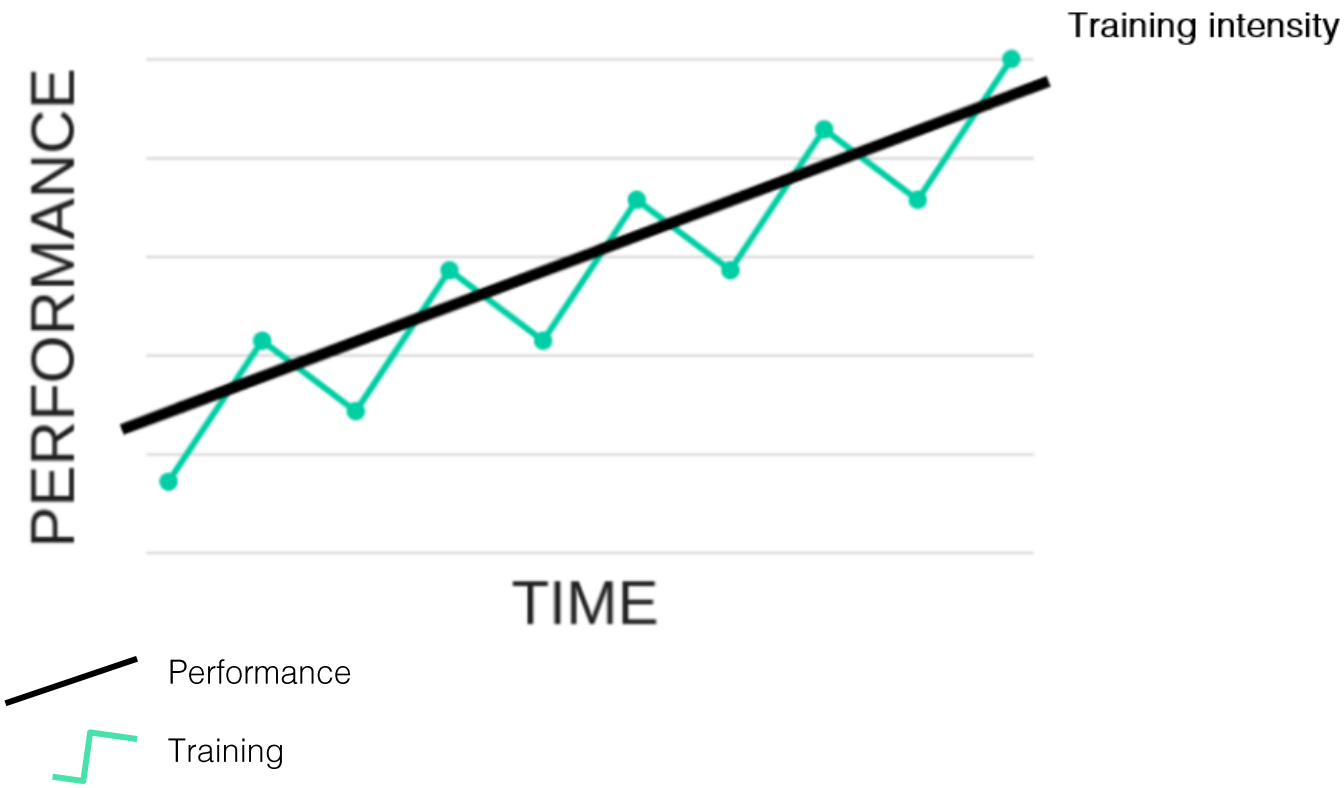
Which expenditure increase has contributed most to the difference between X and Y?

A. Preventative services
B. Health promotion
C. Complementary services
D. Curative services

9) What are the benefits to the community of an increased uptake of private health insurance?

A. Decreased burden on public health care reduces waiting times.
B. Government rebates will decrease the cost of private health insurance.
C. Greater equity of resources for Australians in remote and rural regions.
D. Increased number of people with private insurances reduce the cost of premiums.

10) The chart shows the result of systematic effort being applied to a fitness training program.



Respectively, which principles have led to the improvement of fitness?

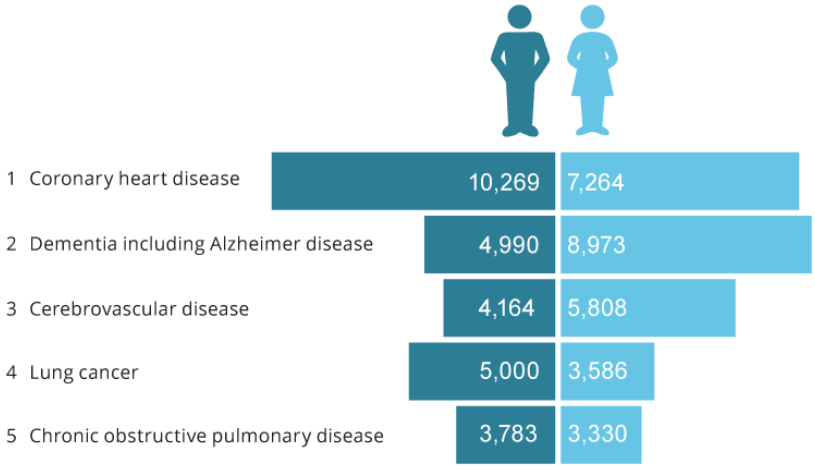
A. Overload, underload, anaerobic threshold
B. Overload, recovery, overload
C. Overload, aerobic threshold, overload
D. Overload, recovery, underload

11) Which of the following would be the most appropriate valid test to assess the skill of a basketball player?

A. Shooting 10 balls to measure strength
B. Performing 10 layups to measure coordination
C. Sprinting a series of 10m shuttles in a set time period
D. Performing 5 vertical jumps to measure power

12) Observe the image below.

Figure 3.1: Leading underlying causes of death, by sex, 2018



Note: Leading causes of death are based on underlying causes of death and classified using an AIHW-modified version of Becker et al. 2006.

Source: AIHW National Mortality Database (Table S3.1).

Which statement is most correct?

A. Coronary heart disease is the leading cause of death for males and females.
B. Twice as many women die from Dementia and Alzheimer disease compared to men.
C. Lung cancer is the fourth leading cause of death for females and males combined.
D. Dementia and Alzheimer disease is the second leading cause of death for males.

13) An athlete decides to use creatine in an attempt to improve their performance.

Which of the following would be the benefit of this supplementation?

A. Enhanced efficiency of the ATP-PC system to break down glucose during high intensity activity.
B. Enhanced efficiency of the lactic acid system to delay the onset of muscle fatigue during medium intensity activity.
C. Enhanced ability to resynthesise the ATP to provide energy during high intensity activity.
D. Enhanced efficiency of the lactic acid system to provide energy during medium intensity activity.

14) Which of the following respectively identifies physiological and neural recovery strategies?

	Physiological	Neural
A.	Warm water immersion to lower tension and enhance waste removal	Fluid replacement to overcome loss through sweat and respiration
B.	Fluid replacement to overcome loss through sweat and respiration	Warm water immersion to lower tension and enhance waste removal
C.	Cryotherapy to slow down the inflammatory process	Meditation to relax after the pressure of performance
D.	Meditation to relax after the pressure of performance	Cryotherapy to slow down the inflammatory process

15) Why is Proprioceptive Neuromuscular Facilitation (PNF) the desired preparation prior to athletic competition?

A. PNF inhibits the stretch reflex allowing for greater range of motion.
B. PNF provides minimal change to muscle fibres and is the safest method.
C. PNF involves isometric, static, ballistic stretches and provides a comprehensive stretch.
D. PNF provides both the shortening and lengthening of muscle fibres and works only the agonist muscles.

16) Which performance element is demonstrated by an athlete knowing when to pass a ball so that the opposition is committed to making a tackle?

A. Tactics
B. Strategy
C. Decision making
D. Kinesthetic sense

17) Read the statement below.

> Cancer is the leading cause of disease burden in Australia, accounting for 19% of total disease burden.
> Recent trends show that 5-year survival rates from all cancers combined have increased.

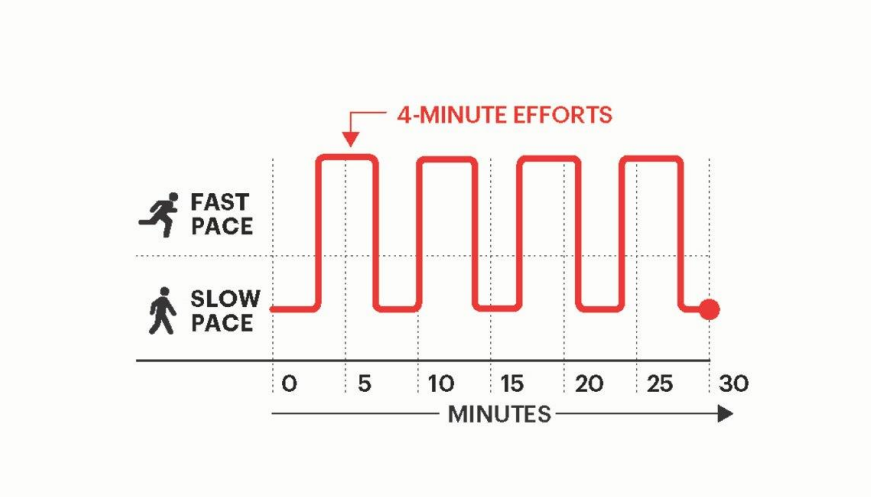
The statement supports which of the following criteria for the inclusion of cancer as a priority health issue?

A. Social justice principles and prevalence of condition
B. Prevalence of condition and priority population groups
C. Potential for early intervention and priority population groups
D. Prevalence of condition and potential for early intervention

18) Which scenario best describes how the characteristics of a learner can influence skill acquisition?

A. An Endomorph learning the correct technique for a tackle would more likely reside in the cognitive stage of skill acquisition for longer than a Ectomorph
B. An athlete with 70% fast twitch muscle fibres is more likely to be become autonomous in sprinting techniques
C. An athlete with a high level of confidence in their ability to perform a successful high jump is likely to be in the cognitive stage of skill acquisition
D. An athlete with good reaction time is likely to experience the associative stage of skill acquisition when learning to return serve in tennis

19) What type of training is represented by the image below?



A. Aerobic Interval training
B. Aerobic Fartlek training
C. Anaerobic Interval training
D. Circuit training

20) Which statement most correctly describes the responsibility for health care in Australia?

A. The Commonwealth Government contributes major funds to high level residential care, community health services, medical services, meals on wheels and pharmaceuticals.
B. The State/Territory Government contributes major funds to community health services, private hospitals, health research and public health activities.
C. The Local Government health responsibilities vary from state to state. They are mainly concerned with environmental control such as waste disposal; immunisations along with home care services such as Meals on Wheels.
D. The Private Sector provides a wide range of services including private hospitals, pharmaceuticals, special community services, dentists and alternative health services such as chiropractors.

Section I (continued)

Part B – 40 marks
Attempt Questions 21-28
Allow about 1 hour and 10 minutes for this part

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Extra writing space is provided on page 18. If you use this space, clearly indicate which question you are answering.

Write your Student Number at the top of this page.

Question 21 (3 marks)

Outline ONE complementary health care approach that can be used alongside conventional Western medicines and therapies?

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Question 22 (3 marks)

What are the main features of the associative stage of skill acquisition? Use an example to support your answer.

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Question 23 (4 marks)

Describe the different practice methods that may be used by coaches.

Question 24 (4 marks)

What are the advantages and disadvantages of Medicare for Australians?

Question 25 (5 marks)

How can tissue damage strategies during recovery be used to enhance sports performance? Provide examples to support your answer.

Question 26 (5 marks)

Explain how sociocultural determinants contribute to the health inequities experienced by Aboriginal and Torres Strait Islander Peoples.

Question 27 (8 marks)

Analyse the physiological adaptations that would need to occur for an untrained athlete to participate competitively in a marathon.

Question 28 (8 marks)

To what extent do health promotion initiatives based on the Ottawa Charter contribute to the health of Australians. Use examples to support your answer.

Section I Part B extra writing space

If you use this space, clearly indicate which question you are answering.

Section II

40 marks

Attempt TWO questions from Questions 29–33
Allow about 1 hour and 10 minutes for this section

Answer each question in a separate Writing Booklet. Extra writing booklets are available. Ensure you put the question number and your student number on each booklet.

Your answers will be assessed on how well you:

- demonstrate knowledge and understanding of health and physical activity concepts relevant to the question
- apply the skills of critical thinking and analysis
- communicate ideas and information using relevant examples
- present a logical and cohesive response

Question 29 — The Health of Young People (20 marks)

(a) How does the successful management of revising roles within relationships and determining behavioural boundaries lead to positive health in young people? (8)

(b) Evaluate the actions and strategies that have been implemented to target ONE major health issue that is currently impacting young people. (12)

Question 30 - Sport and Physical Activity in Australian Society (20 marks)

(a) Why do certain sports and physical activities have cultural significance for particular groups? (8)

(b) Evaluate the extent to which sport has changed to suit the demands of mass media. (12)

Question 31 - Sports Medicine (20 marks)

The Dolphins Under 10's Soccer Team are preparing to play a Saturday round robin competition.

(a) i. Discuss how the coach can manage the medical conditions of asthma and diabetes present in these athletes. (4)

(a) ii. How may thermoregulation impact children in this sporting situation? (4)

(b) An athlete suffers a hamstring injury. Analyse the procedures required to successfully rehabilitate this injury. (12)

Question 32 - Improving Performance (20 marks)

(a) Analyse how the elements of a training session could be modified for an elite sporting team compared to beginner athletes. (8)

(b) Evaluate the ethical implications of the use of drugs and technology to improve sporting performance. (12)

Question 33 - Equity and Health (20 marks)

(a) Discuss the actions that improve health in groups experiencing inequities. (8)

(b) Evaluate the characteristics that contribute to the sustainability of health strategies. (12)

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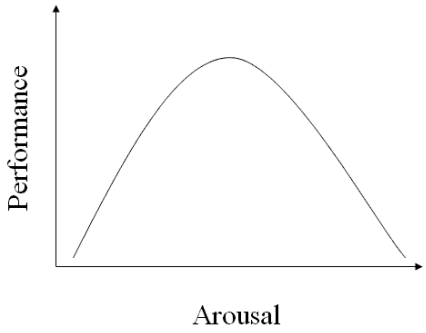
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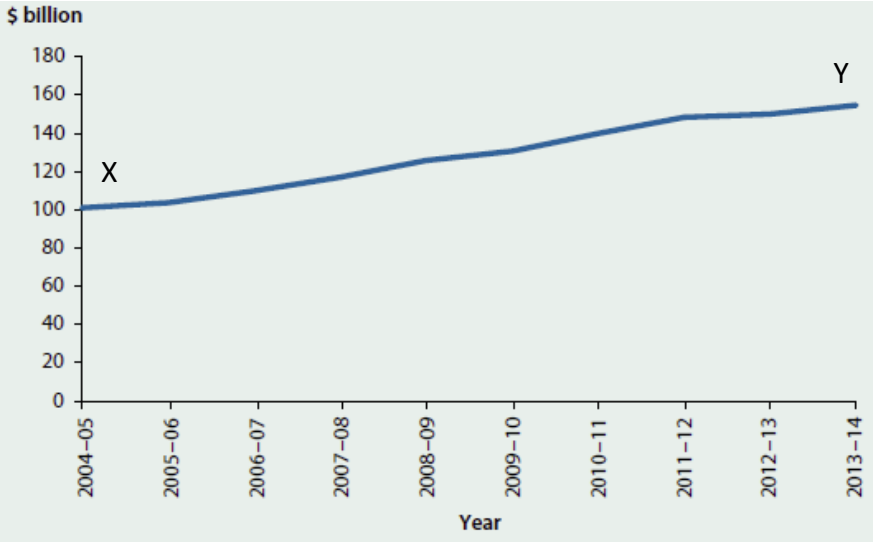
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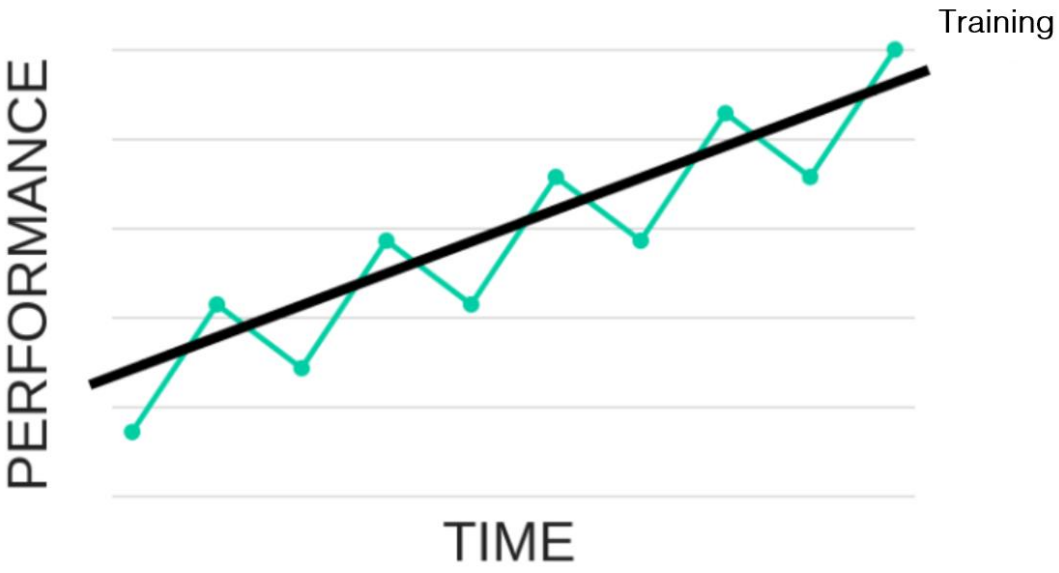
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Performance

Training

Respectively, which principles have led to the improvement of fitness?

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B. Overload, recovery, overload
C. Overload, aerobic threshold, overload
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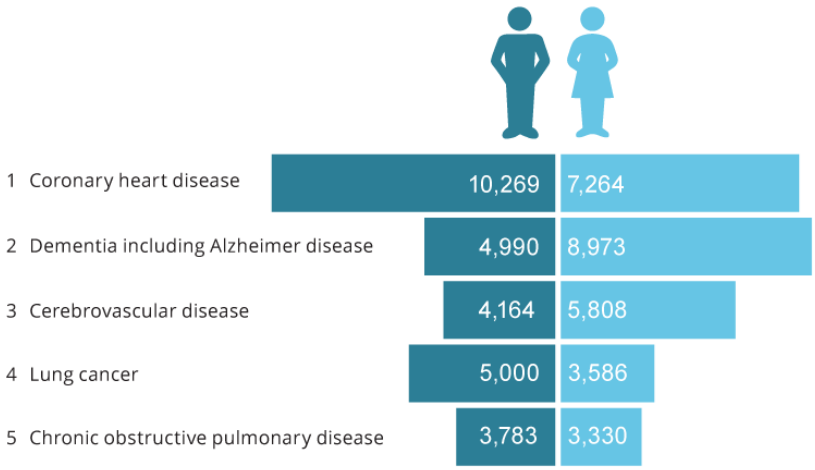
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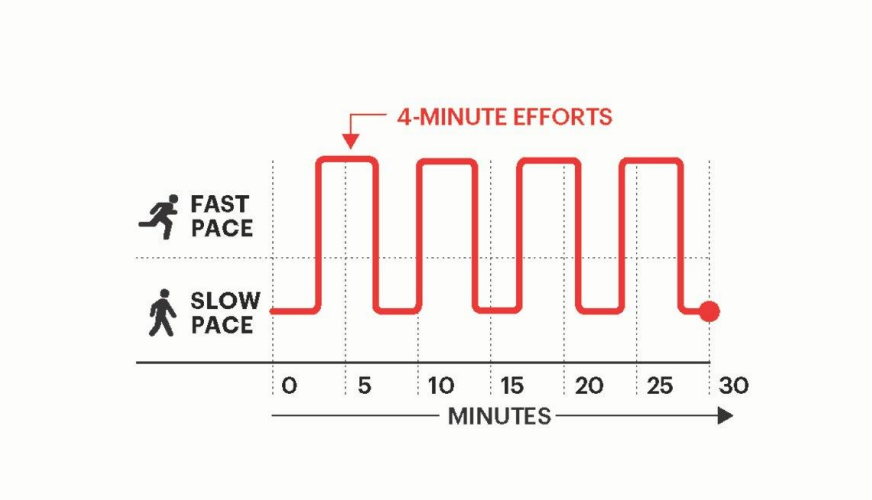
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- Personal Development, Health and Physical Education

Section I (continued)

Part B – 40 marks
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Question 21 (3 marks)

Outline ONE complementary health care approach that can be used alongside conventional Western medicines and therapies?

Criteria	Mark
• Sketches in general terms how a complimentary health care approach is used alongside western medicines and therapies • Uses a relevant example	3
• Identifies a complimentary health care approach that is used alongside western medicine and therapies • Uses a relevant example	2
• Identifies a complimentary health care and/or western medicine OR • Uses an example	1

Syllabus Content

Complementary and alternative health care approaches

- range of products and services available

Sample Answer

Remedial massage is a complimentary therapy where the muscles, tendons and ligaments are massaged. This can be effectively used alongside conventional medicine such as analgesics prescribed by GP's to alleviate back pain or muscle tension and damage resulting from sports participation or tension.

Question 22 (3 marks)

What are the main features of the associative stage of skill acquisition? Use an example to support your answer.

Criteria	Mark
• Describe the main features of the associative stage of skill acquisition • Provides an example that supports the answer	3
• Sketches in general terms the associative stage of skill acquisition	2
• Provides some relevant information about the associative stage and/or skill acquisition	1

Syllabus Content

Stages of skill acquisition

- o cognitive
- o associative
- o autonomous

Sample Answer

In the associative stage, athletes understand how to perform the skill and can progress to focussing on adjusting and fine tuning the skill. Skill becomes more fluent as movement efficiency and results improve. An example is a tennis serve where the athlete has refined the combination of skills that create a more accurate and consistent serve.

At this stage the skill has a lower error rate as they continue to progress through this stage of the continuum, however errors are still present. Athletes can use feedback from others and benefit from regular feedback in this stage. Lots of practice is needed in this stage to move to the autonomous stage, with many athletes remaining in this stage for an extended period of time. Skills can start to become more complex in this area such as moving from stationary shooting at the basket in basketball to a layup.

Question 23 (4 marks)

Describe the different practice methods that may be used by coaches.

Criteria	Mark

• Provides characteristics and features of FOUR different practice methods • Provides relevant examples of the use of different practice methods	4
• Sketches in general terms indicating the main features of TWO or THREE different practice methods • Provides relevant examples of the use of different practice methods	2-3
• Provides some relevant information about practice methods	1

Syllabus Content

- The learning environment:

- Practice method (massed, distributed, whole, part)

Sample Answer

Practice methods are approaches to training and skill development. Coaches may use massed or distributed practice and skills can be taught using whole or part practice methods.

Massed practice is continuous practice with smaller rest periods than practice intervals. Massed practice methods suit skills that are less demanding, such as shooting in basketball or hitting groundstrokes in tennis. It is appropriate for skilled and motivated athletes.

Distributed practice has short periods of practice with longer breaks. It is better suited to young athletes and complex skills. Coaches will also use this method to practise skills that cause fatigue or discomfort, e.g. sprinting, heading a soccer ball, as it allows athletes adequate rest and they are less likely to lose motivation.

Whole practice relates to a skill being practised in its entirety. This practice method is well suited for learning discrete skills that have a clear beginning and end such as high jump as the athlete requires momentum to perform the skill effectively. Whole practice is also appropriate for continuous skills, e.g. swimming, as a whole movement is repeated over and over again enhancing the athletes muscle memory.

Part practice relates to a skill being broken down into its smaller components with each element practised separately before being joined together. It is often used for teaching serial skills that have smaller skills that make up the larger skill, such as a basketball layup. Coaches may use this method for new or complex skills.

Question 24 (4 marks)

What are the advantages and disadvantages of Medicare for Australians?

Criteria	Mark

• Describes the advantages and disadvantages of Australia's public health care system, Medicare • Provides relevant examples	4
• Outlines the advantages and disadvantages of Australia's public health care system, Medicare • Provides some examples	2-3
• Provides relevant information about Medicare	1

Syllabus Content

- health care in Australia
  - health insurance: Medicare and private
    - describe the advantages and disadvantages of Medicare and private health insurance, eg costs, choice, ancillary benefits

Sample Answer

Australia's public health care system is supported by Medicare. There are advantages and disadvantages to Medicare. Advantages of Medicare include allowing Australians to receive the basic level of health care. Medicare covers the costs incurred by a patient in hospital and a large portion of the cost for primary health care. Regardless of what doctors or specialists charge, every Australian is covered for 85 per cent of an amount that is set down by the government as a common (scheduled) fee. Many doctors bulk bill patients, which means the patient pays nothing and the doctor receives up to 100 per cent (85 per cent in the case of specialists) of the scheduled fee from Medicare. Medicare also provides free or subsidised medical treatments in the form of the Pharmaceutical Benefits Scheme where costs for medication is subsidised or free for chronic illnesses. Medicare also provides free public hospital care. Medicare benefits also cover optometrist services and oral surgery, but not private dentistry, physiotherapy, chiropractic treatment and appliances.

Medicare is funded through the tax system and therefore cannot cover all medical costs for all Australians. Some disadvantages of Medicare are that it does not cover most ancillary care providers, other than the allied health and dental care provided through the Allied Health Initiative, which allows some rebate to be claimed for people who are chronically ill. Allied health providers include: physiotherapist, osteopath, chiropractor, exercise physiologist, occupational therapist, and psychologists. Under Medicare the patient has little choice of care provider. Patients can choose their GP, or specialist, but if using hospital care, they have no choice other than the hospital they go to. Medicare is a diverse system which applies for all Australians.

Question 25 (5 marks)
How can tissue damage strategies during recovery be used to enhance sports performance? Provide examples to support your answer.

Criteria	Mark
• Clearly makes evident how tissue damage strategies (Cryotherapy) can be used to enhance sports performance • Provides relevant examples	5
• Provides characteristics and features of how tissue damage strategies (Cryotherapy) can enhance sports performance • Provides examples	4
• Sketches in general term how recovery can enhance sports performance • May provide an example	2-3
• Provides some relevant information about recovery	1

Syllabus Content

- Recovery strategies
  - tissue damage strategies, eg cryotherapy
  - research recovery strategies to discern their main features and proposed benefits to performance.

Sample Answer

For an athlete to maintain their peak performance levels it is vital that they plan for and allow their bodies to recover between games and training sessions. Recovery is the time that is needed for repair of damage that has occurred during competition and training. Tissue damage may be minor, as in the case of soreness, or more long term as might be the case with bruising or muscle tears. Various forms of cryotherapy, which involves the use of cooling to treat injury or quicken recovery, can enhance sports performance.

Ice is the most used form of cryotherapy because it is usually readily available and can slow down the tissue inflammatory process, preventing the build-up of waste. If this is not removed quickly, it contributes to muscle soreness and stiffness and reduces flexibility, hence the benefits of ice in speeding up recovery and enhancing sports performance for subsequent training session or competitions.

Ice baths have become popular in sports like touch football, rugby, soccer and endurance racing. This technique calls for immersion of affected body parts (often most of the body) in a bath of ice of 4-12°C for no longer than 15 minutes. Cold baths work on the principle that decreased temperature contracts

blood vessels, decreasing their diameter. On emerging from the bath, the body warms and blood vessels enlarge. This allows fresh, oxygen-rich blood to flow into the muscles, stimulating recovery. As the plunge into an ice bath presents quite a shock to the body, short periods of one minute are recommended initially, building to longer periods as the body gradually adapts.

Cryogenic chambers are cooled to -110°C and athletes enter them for a short time (<3min). The aim is to reduce body temperature in order to release endorphins, which relieve pain, and it reduces the inflammatory response. Reducing the inflammatory response decreases recovery time as muscles are able to return to their pre performance state and contract effectively for the next performance, this is particularly important for NRL players who training each day and play a competition round once a week during the season.

Another tissue damage strategy is the use of compression garments and bandaging. This aims to reduce inflammation and speed up recovery.

These methods can help an athlete feel back to their pre performance levels quicker allowing quicker recovery. This is important in tournaments where games are played in quick succession.

Question 26 (5 marks)

Explain how sociocultural determinants contribute to the health inequities experienced by Aboriginal and Torres Strait Islander Peoples.

Criteria	Mark
• Shows the relationship between the influence of the sociocultural determinants and the health inequities experienced by Aboriginal and Torres Strait Islander Peoples • Provides numerous relevant examples	5
• Provides characteristics and features of the sociocultural determinants that influence the health inequities experienced by Aboriginal and Torres Strait Islander Peoples. • Outlines the health inequities experienced by Aboriginal and Torres Strait Islander Peoples • Provides examples	4
• Sketches in general terms the sociocultural determinants and/or the health inequities experienced by Aboriginal and Torres Strait Islander Peoples. • May provide an example	2-3
• Provides some relevant information about the sociocultural determinants OR • health inequities experienced by Aboriginal and Torres Strait Islander Peoples	1

Syllabus Content

- groups experiencing health inequities
  - Aboriginal and Torres Strait Islander peoples

Sample Answer

The sociocultural determinants of health for Aboriginal and Torres Strait Islander peoples (ATSI) include: family, peers, religion, culture and media. Epidemiological data reveals ATSI families experiences greater health inequities than non-indigenous Australians, ranging from a lower life expectancy, increased suffering of chronic diseases such as CVD, some types of cancer, Type II diabetes, alcoholism, and Ottis Medius in Indigenous children. They experience lower education completion rates, poorer housing standards and limited access to medical treatment and products often due to remote locations.

Family can have an adverse influence on health and exacerbate the health inequities experienced by ATSI. There are higher rates of domestic violence with one in 5 Indigenous adults reported being a victim of violence in the 12 months. Living in an unsafe household can contribute to increased rates of physical and psychological harm, that can in turn impact work and learning productivity, leading to

socioeconomic disadvantage. For example, an indigenous high school student experiencing family violence may find it difficult to concentrate on their studies and consequently fall behind in their education.

Peers can also negatively impact health. As Aboriginal and Torres Strait Islanders often live in tight knit communities, the whole community can be affected by family violence. 'Community depression' comes from a shared sense of shame, despair, demoralisation and hopelessness. This contributes to increased rates of mental illness compared to non-Indigenous Australians. Increased rates of alcoholism also exist in some ATSI communities. Young people can be influenced by their peers to drink at dangerous levels. If these habits are continued well into adulthood they present as risk factors for CVD and stomach and liver cancer.

Religion or spirituality in the case of ATSI has suffered greatly since the colonisation of Australia. The damage caused by the loss of identity to Indigenous Australians has led to increased rates of alcoholism, used as a coping mechanism, which has affected the number of indigenous Australians suffering liver damage, liver cirrhosis and other alcohol related injuries. Loss of identity also impacts the rates of mental health problems and suicide in the indigenous population explaining the disproportionate number of suicides by Indigenous Australians.

Another major barrier within the culture of ATSI people is the disempowerment they feel as a result of many years of oppression and discrimination from non-indigenous Australians. This ranges from the invasion of the first fleet to our white Australia policy, the stolen generation and general caricature's of the ATSI people today. Discrimination leads to mental health problems and illnesses and explains the disproportionate number of Indigenous Australians suffering from Depression and Anxiety.

Media can have a significant impact on the representation of Indigenous Australians contributing to stereotypes that increase discrimination, leading to higher rates of mental health problems in ATSI. The media can also adversely impact Indigenous issues by over representing a point of view, for example; in 2013 when Adam Goodes, an Indigenous AFL player, was regularly booed during matches, the media debated whether this was related to racism or not, which undermined the hurt and pain experienced by Adam Goodes and the Indigenous population as they were not immediately supported by the majority of non-indigenous Australians rejecting of such behaviour. This lack of support contributes to the

discrimination experienced by ATSI leading to psychological and physical harm such as depression and physical injuries related to the use of unhealthy coping mechanisms such as self harm, alcohol and drug abuse.

Question 27 (8 marks)
Analyse the physiological adaptations that would need to occur for an untrained athlete to participate competitively in a marathon.

Criteria	Mark
• Demonstrates extensive knowledge and understanding of the physiological adaptations and their relationship to performance in a marathon • Draws out and relates how physiological adaptations enhance the ability of the untrained athlete to participate competitively in a marathon. • Provides relevant examples	8
• Demonstrates thorough knowledge and understanding of the physiological adaptations and their relationship to performance in a marathon • Makes evident a relationship between the physiological adaptations and enhanced ability to participate competitively in a marathon. • Provides relevant examples	6-7
• Provides characteristics and features of physiological adaptations that occur for the untrained athlete to compete in a marathon • Provides basic examples	4-5
• Sketches in general terms physiological adaptations that occur for the untrained athlete to compete in a marathon	2-3
• Provides some relevant information in relation to physiological adaptations	1

Syllabus Content

- Physiological adaptations in response to training
  - Resting heart rate
  - Stroke volume and cardiac output
  - Oxygen uptake and lung capacity
  - Haemoglobin level
  - Muscle hypertrophy
  - Effect on fast/slow twitch muscle fibres

- Examine the relationship between the principles of training, physiological adaptations and improved performance.

Sample Answer

Competing in a marathon will involve the untrained athlete developing the aerobic energy system to enhance cardiovascular endurance by utilising the FITT principle (a frequency of 3-4 sessions/week, working in 60-80% of training heart rate zone, aerobic in future and minimum of 20-30 minutes in duration) As a result of this type of training physiological adaptations will occur so the untrained athlete is physically prepared for a marathon.

Training would be aerobic nature and mainly in the form of long distance running e.g. continuous or aerobic intervals for specificity but to incorporate some variety, cycling, swimming or circuit training may also be used. Aerobic training will result in increased stroke volume, cardiac output and a lowered resting heart rate. This is the result of the heart becoming a stronger muscle thus being able to pump oxygen in blood through the left ventricle to working muscles with each beat more quickly and efficiently. A trained athlete will be able to also remove waste products such as lactate and carbon dioxide quicker and maintain intensity as a result. These physiological adaptations are essential for success in a marathon and will develop through aerobic training protocols by the untrained athlete.

Haemoglobin levels will also rise as a result of aerobic training allowing better oxygen carrying capacity and direct delivery to working muscles. This means in order to deliver the same amount of oxygen; the body needs to transfer less blood than someone who is not trained thus this is an important adaptation to occur for performance in a marathon. Lung capacity will not change as a result of aerobic training but oxygen uptake or the body's ability to transfer and transport oxygen in the blood for muscle usage will be enhanced. This is a significant physiological adaptation that the untrained athlete will need for success in an endurance-based event such as the marathon.

Aerobic raining will lead to muscle hypertrophy (left ventricular) for the untrained athlete contributing to the efficiency of the cardiorespiratory system. The specificity of the training will enhance muscle fibre recruitment. For example, if a marathon runner is using continuous/aerobic training techniques they will experience an increase in slow twitch muscle fibre recruitment. This will benefit an aerobic athletes' performance and is thus another important physiological adaptation the untrained athlete will experience with training for a marathon.

Question 28 (8 marks)

To what extent do health promotion initiatives based on the Ottawa Charter contribute to the health of Australians. Use examples to support your answer.

Criteria	Mark
• Makes an accurate judgement about the degree to which the health of Australians has improved through the use of the Ottawa Charter in health promotion initiatives • Makes evident the relationship between the Ottawa Charter, health promotion initiatives and improved health for Australians • Provides relevant and specific examples	8
• Makes evident the relationship between the Ottawa Charter, health promotion initiatives and improved health for Australians • Provides relevant examples	6-7
• Provides characteristics and features of health promotion initiatives that use the Ottawa Charter • Sketches, in general terms, how the health of Australians has improved through health promotion initiatives • Provides examples	4-5
• Sketches, in general terms, health promotion initiative(s) and/or the Ottawa Charter	2-3
• Provides some relevant information about health promotion	1

Syllabus Content

- health promotion based on the five action areas of the Ottawa Charter
- how health promotion based on the Ottawa Charter promotes social justice
- the Ottawa Charter in action
- critically analyse the importance of the five action areas of the Ottawa Charter through a study of TWO health promotion initiatives related to Australia's health priorities

Sample Answer

The health of Australians has been significantly improved as a result of health promotion initiatives that use the Ottawa Charter. There has been a favourable 10-year trend in life expectancy for males and females. The National Tobacco strategy has effectively used the Ottawa Charter action areas, eg *developing personal skills* by using a range of effective media campaigns to educate and

promote awareness of the benefits of not smoking. This initiative also used *healthy public policy*, creating legislation which restricted the sale of tobacco as well as the areas where smoking is allowed. This helped to reduce smoking rates, and the number of people exposed to passive smoke. As a result it has contributed to the reduction in mortality rates from lung cancer. The reduction in mortality rates from lung cancer has contributed to the increase in life expectancy in Australia.

The Road Safety Plan 2021 has successful engaged the action areas of the Ottawa Charter to reduce the number of fatalities and road accidents. Official figures released by Transport for NSW show 297 people died on the roads in 2020, a reduction of 16 per cent (or 56 deaths) compared to the prior year. *Strengthening Community Action* is seen through the use of car dashboard camera's to report illegal behaviour. This effectively empowers the community at their level of responsibility, calling them to take action and work towards safety road use. Towards Zero also *Reorients health services* as the initiative includes actions such as providing high quality and enhanced fatal and serious injury crash data and analysis. This is made available to the public and road safety delivery partners, to affect action. The data is also used in the implementation of a robust research program. *Building healthy public policy* has seen police task forces created to target mobile use when driving. An increased number of mobile detection cameras have also been deployed enabling a greater number of fines issued for driver misconduct. This has been effective in promoting safer driving as there has been an increase in the number of people caught using their mobile phones whilst driving and this has begun to deter people from using their phones while driving. This creates safer road use leading to a reduced number of road accidents and injuries. Another example of the effective use of a police task force is that of drink and drug driver tests. Towards Zero established partnership with NSW Police to deliver the Enhanced Enforcement Program. This involves more police cars on the road targeting drink/drug driving and issuing penalties for those non-compliant with the law. This has had a positive impact, with the exception of the 2016 fatality result, alcohol related fatalities and serious injuries have decreased since 2009.

These health promotion initiatives based on the Ottawa Charter have successfully contributed to the health of Australians.

Section II

40 marks

Attempt TWO questions from Questions 29–33
Allow about 1 hour and 10 minutes for this section

Answer each question in a separate Writing Booklet. Extra writing booklets are available. Ensure you put the question number and your student number on each booklet.

Your answers will be assessed on how well you:

- demonstrate knowledge and understanding of health and physical activity concepts relevant to the question
- apply the skills of critical thinking and analysis
- communicate ideas and information using relevant examples
- present a logical and cohesive response

Question 29 — The Health of Young People (20 marks)

(a) How does the successful management of revising roles within relationships and determining behavioural boundaries lead to positive health in young people? (8 marks)

Criteria	Mark
• Provides reasons as to how revising roles within relationships and determining behavioural boundaries can be successfully managed by young people to achieve better health. • Makes evident the relationship between the successful management of these developmental aspects and the attainment of better health. • Provides relevant examples.	7 – 8
• Provides characteristics and features of revising roles within relationships and determining behavioural boundaries. • Recognises a relationship between the successful management of these developmental aspects and the attainment of better health. • Provides relevant examples.	5 – 6
• Sketches in general terms the developmental aspects of revising roles within relationships and determining behavioural boundaries AND/OR how they are successfully managed. • Provides an example.	3 – 4
• Provides some relevant information on the developmental aspects of establishing revising roles within relationships and determining behavioural boundaries.	1 – 2

Syllabus Content

- developmental aspects that affect the health of young people
  - revising roles within relationships
  - determining behavioural boundaries.

Suggested Answer

Revising roles within relationships and determining behavioural boundaries are developmental aspects that affect the health of young people. If these are successfully managed that can lead to positive health outcomes for young people.

As adolescents grow they begin to revise their roles with family, friends and peers. This can have both a positive and negative influence on a young person's health. Positive influences can be the social stigma attached to smoking, that it is unhealthy and 'uncool', this will result in improved physical health and the young person will feel connected to their values resulting in positive emotional health. Peers could see this as unacceptable behaviour and socially ostracise the individual, causing them to question and revaluate their priorities impacting their social health. In family relationships, it's often the family culture and/or religion that influence the value adolescents place on their health. An individual raised in a strict religious household could hold values which positively affect their health eg no sexual intercourse before marriage reduces the risk of contracting a sexually transmitted disease.

Adolescence is a time for testing and establishing boundaries of behaviour and learning. This is a time to question the boundaries that have been set for adolescence such as a curfew by parents, and learn to take responsibility for their own behaviour. In certain circumstances, when there are no negative consequences for any action, young people may also begin to believe that they are immune from punishment; that, because of their age, they can commit crimes with impunity. In some isolated rural communities this has led to the establishment of curfews that restrict the movements of young people at night.

Laws are designed to protect people from harm by others and from doing harm to themselves. Young people who are willing to accept society's boundaries, and can set their own healthy boundaries, can avoid being involved in drinking and driving, using illegal drugs or committing violence, and consequently spend time in juvenile justice institutions. It is important for young people to communicate their boundaries to their family and peers when appropriate so they can maintain healthy decision making. Besides avoiding the potential for physical injury from these risk-taking behaviours mentioned (drinking driving), young people who can successfully respect and adhere to reasonable boundaries may also be able to avoid the inability to cope with confinement

or the consequences of their actions, which can lead, in the worse instances to contemplating suicide.

In schools, behavioural boundaries are necessary to ensure all students are able to learn in a safe and supportive environment. Students who cannot accept these boundaries may suffer stress and refuse to attend, or may change schools frequently. School policies encourage students to develop their own personal boundaries so that they are able to accept responsibility for their actions and not blame others. The peer group often challenges a young person's personal behavioural boundaries, which can result in risk-taking behaviours such as engaging in unsafe sex or not wearing seatbelts. These can have long-term health consequences because they can lead to injury, disability, dysfunction or stress-related disorders. Young people who are able to set their own boundaries are likely to be more confident, independent and achieve a higher health status as a result.

(b) Evaluate the actions and strategies that have been implemented to target ONE major health issue that is currently impacting young people. (12 marks)

Criteria	Mark
• Makes a judgement and relates the actions and strategies that have been implemented to target ONE major health issue that is currently impacting young people • Uses specific and in-depth examples • Answer is presented in a clear and logical manner	11-12
• Draws out and relates the actions and strategies that have been implemented to target ONE major health issue that is currently impacting young people • Uses examples • Answer is presented in a clear and logical manner	8-10
• Provides the characteristics and features of the actions and strategies that have been implemented to target ONE major health issue that is currently impacting young people • Uses examples	5-7
• Outlines the actions and strategies that have been implemented to target ONE major health issue impacting on young people.	3-4
• Provides some relevant information about the actions and strategies that have been implemented to target ONE major health issue that is currently impacting young people	1-2

Syllabus Content

- Actions targeting health issues relevant to young people
  - social action
  - legislation and public policy
  - health promotion initiatives

- the major health issues that impact on young people
  - mental health problems and illnesses
  - alcohol consumption
  - violence
  - road safety
  - sexual health
  - body image
  - other relevant/emerging health issues, eg gambling, cyber-bullying, party crashes, drink spiking

Answers may include;

Students should be able to identify the relevant actions implemented by government and non-government agencies that target ONE major health issue that impacts young people. E.g. Road Safety or Mental Health Problems and Illnesses as per the syllabus.

- Social action

Although individuals must exert control over their health it is not solely their responsibility. This is where society needs to band together to support young people when learning to drive. Whether this be a family member or a professional driving instructor.

- Legislation and public policy

There are various laws and policies that have been developed in recent times to ensure that young people are given the opportunity to lead a healthy lifestyle and to stay safe. All motor vehicle laws regarding the compulsory wearing of seatbelts, banning mobile phone use while driving, passenger number limits and speeding that aim to reduce deaths and injuries. The government also enforces specialised laws for young people; for example, extended L plates, restricted P plate licenses, blood alcohol limits, passenger limits at certain times and restrictions on driving high performance vehicles.

- Health promotion initiatives

There have been many health promotion initiative created to support young people and provide them with the knowledge, skills and understanding of what is required to minimize harm in their lives by changing their behaviours in a positive way. Example of a health promotion initiative targeted at young people is ‘’Get your hand off it’. The campaign has evolved to highlight the serious consequences of using your mobile phone illegally while driving. The campaign also encourages drivers to know the rules about mobile phone use.

Question 31 - Sports Medicine (20 marks)

The Dolphins Under 10's Soccer Team are preparing to play a Saturday round robin competition.
(a)i Describe how the coach can manage the medical conditions of asthma and diabetes present in their athletes in the lead up to and during the competition. (4 marks)

Criteria	Marks
• Provides the characteristics and features of the management strategies used to address asthma and diabetes in children and young athletes. • Presents ideas in a clear and logical way • Provides relevant examples	4
• Outlines the management strategies used to address asthma and diabetes in children and young athletes. • Provides examples	3
• Sketches in general terms medical conditions of children and young athletes in sport	2
• Provides some relevant information on medical conditions of children and young athletes	1

Syllabus Content

- children and young athletes
  - medical conditions (asthma, diabetes, epilepsy)

Suggested Answer

Medical conditions such as asthma and diabetes need to be appropriately managed to minimise their affect on sporting participation and performance. Ensuring that athletes have appropriate medication and the coach has current first aid qualifications is crucial. The coach should be aware of and implement asthma management measures such as gradually increasing exercise intensity by ensuring the athlete does an adequate warm up prior to the first match of the tournament, if medication is required such as an inhaler, it is essential to use it before exercise, activity should be preceded by controlled breathing and relaxation exercises and, if attacks are triggered by environmental factors, remove the athlete from that environment. For example, an asthmatic must have their inhaler present, and a coach must be aware of the athlete's asthma management plan, so they are aware of the triggers that may lead to an attack while participating in sport. If these measures are not put in place, then the lives of young athletes may be jeopardised when an asthma attack occurs.

The coach of an athlete with diabetes needs to have a good understanding of the effects of exercise on blood glucose levels. With regular monitoring and appropriate adjustments to insulin

dosage and carbohydrate intake, the athlete with diabetes should be able to participate fully in the soccer tournament. Prior to the tournament the coach should liaise with parents and ensure the athlete is physically capable of participating in the soccer games. During the tournament the coach should ensure that the athlete has carbohydrate foods such as fruit, fruit juice, barley sugar or biscuits. As the tournament continues blood glucose levels may continue to drop for a number of hours. It is important that coach monitors the athlete and recommends carbohydrate is ingested when exercise is completed to prevent hypoglycaemia. As dehydration can be confused with hypoglycaemia it is important the coach monitors regular fluid consumption. As the athlete may need to inject insulin throughout the tournament, the coach should be aware what Blood glucose reading would warrant an injection and when these injections need to occur if a parent is not present.

(a)ii How may thermoregulation impact children in sporting situations (4 marks)

Criteria	Marks
• Makes evident the relationship between thermoregulation and the impact on children in sporting situations • Provides relevant examples	4
• Provides features of thermoregulations and an impact on children in sporting situations.	3
• Sketches in general terms thermoregulation and children in sporting situations.	2
• Provides some relevant information on thermoregulations	1

Syllabus Content

- children and young athletes
  - thermoregulation

Suggested Answer

Thermoregulation is the body's way of maintaining core temperature regardless of the external environment to function optimally.

Children are not efficient temperature regulators as they have a diminished sweating capacity due to underdeveloped sweat glands and larger skin surface area to mass ratio. Children are at higher risk of heat and cold injury as their evaporation process is less efficient. They are impacted by extremes of heat and cold much faster than adults and the reality is that the intensity and length of activity will need to be modified for younger athletes to avoid heat or cold injury and illness.
The impact for children in sporting situations is the need for constant monitoring by coaches. parents and support staff. Hydration breaks are mandatory in situations where exposure is expected (wind, rain, sun). Activity should be moved into the shade on hot and humid days. Appropriate clothing may need to be specified to ensure warming or cooling of children during sport or training.

Activities such as cross country and swimming need to have appropriate planning in place to ensure the children are protected from heat loss or heat absorption. Children have trouble regulating this themselves.

(b) An athlete suffers a hamstring injury. Analyse the procedures required to successfully rehabilitate this injury (12 marks)

Criteria	Marks
• Draw out and relate implications of the procedures required to successfully rehabilitate a hamstring injury • Makes clear links between a hamstring injury and successful rehabilitation • Presents ideas in a clear and logical way • Illustrates answers with relevant examples	11-12
• Draw out and relate implications of the procedures required to successfully rehabilitate a hamstring injury • Illustrates answers with examples	8-10
• Provides the characteristics and features of the procedures required to successfully rehabilitate a hamstring injury • Provides limited examples	5-7
• Sketches in general terms the procedures required to successfully rehabilitate a hamstring injury	3-4
• Provides some relevant information about the procedures required to successfully rehabilitate a hamstring injury	1-2

Syllabus Content

•rehabilitation procedures

- progressive mobilisation
- graduated exercise (stretching, conditioning, total body fitness)
- training
- use of heat and cold

Suggested Answer

Following a hamstring injury there are many procedures that the athlete must follow during their rehabilitation procedures. This is after assessment and management of the injury to assist the athlete to be able to return to play as soon as possible.

Rehabilitation procedures are the procedures used by sports physiotherapists and exercise physiologists in the care and management of sports injuries. Progressive mobilisation is the gradual increase in pain free joint range of motion, while graduated exercise, refers to the gradual increase in exercise intensity and the forces going through the injury area. During rehabilitation, procedures help to ensure the athlete does not lose all fitness via the reversibility effect.

Instead, some form of training will still be prescribed and monitored if possible. The procedures for rehabilitation will also use heat and cold in the treatment of the injury. Heat is used to increase

blood flow and elasticity of the joint, while cold is used to decrease blood flow and inflammation around the injury.

There should be no stretching of the hamstring during the initial acute period of injury. This will allow the injury to begin to heal before it is pulled at, which will cause further injury. Once a professional has declared this to be over, stretching becomes the first rehabilitation procedure for a hamstring tear. Stretching should begin using isometric stretching, where the hamstring is stretched with no pain. The muscle should just begin to stretch and then it should be held there, not taken further. Adjustments to the stretch, such as straight legged, then bent leg, should be used to target each hamstring individually. Stretching can then progress to PNF and dynamic stretches as functional capacity begins to return to the leg. Stretching will help to increase and restore the range of motion/movement at the knee and hip as the hamstring goes across both joints.

Conditioning is another aspect of the rehabilitation procedures for a hamstring tear. General strengthening exercises should be pain free. The athlete should begin with isometric contractions of the hamstring that are a low intensity to begin with. Isometric exercises should be conducted throughout the pain free range of movement. Conditioning exercises will then progress through a range of dynamic activities as recovery continues. Movements will then become functional, before sport specific exercises are given. During these exercises, it is important to minimise pain, and often cold therapy is used if pain occurs.

After the acute phase of injury, stationary equipment is used to maintain and/or enhance total body fitness. Arm ergometers can be used to help maintain cardiovascular fitness, but also rowing machines and cross trainers can be used, as long as the intensity keeps the hamstring pain free. From these low impact machines, the athlete will progress to light jogging and before agility runs. Finally, the athlete will progress to full sprints.

One of the final rehabilitation procedures for a hamstring tear is training. Once the athlete has been given the clear from a professional, they may return to training. It will take a while for the muscular endurance and power produced by the hamstring to return. The athlete will also become more confident to use the hamstring to their full potential through training drills.

The use of heat and cold as a rehabilitation procedure for a hamstring tear is used throughout the recovery process. Cold therapy is used when pain occurs, especially during the acute phase of injury, or after rehabilitation exercises. Heat is not used in the acute phase, but may be used to enhance blood flow to the hamstring before stretching or rehabilitation exercises in order to increase flexibility, and to provide blood flow to the area in order to speed up the healing process.

The use of these rehabilitation procedures for a hamstring tear will help provide a speedy recovery, while maintaining athlete safety and reducing the chance of re-injury.