ACHPER Australia Victorian Branch Inc.

Trial Examination 2011

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER Letter

Figures									
Words									

PHYSICAL EDUCATION

Written examination

Reading time: 15 minutes
Total writing time: 2 hours

QUESTION AND ANSWER BOOK

Structure of book

Section	*Number of questions*	*Number of questions to be answered*	*Number of marks*
A	**15**	**15**	**15**
B	**12**	**60**	**113**
			Total: 128

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied
- Question and answer book of 22 pages.
- Answer sheet for multiple-choice questions.

Instructions
- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination
- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

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SECTION A – Multiple-choice questions

Instructions for Section A

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is correct or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Question 1

Massage is a recovery strategy used by many athletes. Which of the following is a perceived psychological benefit of massage?

A. decreased impact of DOMS (delayed onset muscle soreness)

B. decreased muscle oedema

C. increased speed of removal of metabolic waste products

D. decreased anxiety

Question 2

Flexibility is most affected by

A. muscle temperature, sport participation, age and gender.

B. muscle temperature, joint structure, age and gender.

C. joint structure, age, gender and sport participation.

D. muscle temperature, joint structure, sport participation and gender.

Question 3

The seated basketball throw test assesses

A. upper body muscular strength.

B. shoulder flexibility.

C. upper body muscular endurance.

D. upper body muscular power.

Question 4

Identify the combination of factors that best represent the social-ecological component of social environment.

A. walking/cycling paths, urban planning policies, self-efficacy

B. sibling physical activity, social support friends, someone to be active with

C. beliefs, dietary habits, pet ownership

D. access to parks/grounds, gender, social norms

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Question 5

Sedentary behaviour is best defined as

A. 30 minutes of electronic media a day.

B. movement is perceived as an opportunity, not an inconvenience.

C. low levels of energy expenditure, sitting for long periods of time, not moving around.

D. activity that is in a metabolic equivalent of task (MET) range of 3 – 4.

Question 6

Eamon Sullivan holds the Australian record for the 50 metre Freestyle. His time of 21.28 seconds is the 3rd fastest time recorded. The relative contributions of anaerobic and aerobic energy systems for this exhaustive event is likely to be

A. 85% Anaerobic and 15% Aerobic.

B. 73% Anaerobic and 27% Aerobic.

C. 50% Anaerobic and 50% Aerobic.

D. 43% Anaerobic and 57% Aerobic.

Question 7

Which of the following results would be rated as excellent?

A. a 17 year old female achieving +10cm in the modified sit and reach test

B. a 17 year old female achieving level 6 on the 7-level abdominal strength test

C. a 17 year old male achieving level 9 for the 20 metre multi-stage shuttle run test

D. a 17 year old male completing seventeen push-ups in the 30 second modified push-up test

Question 8

Arteriovenous oxygen difference refers to

A. the maximum amount of oxygen an individual can uptake, transport and utilize in a minute.

B. the amount of oxygen that the muscles' cells can extract from the blood.

C. the difference in oxygen concentration in the arterioles compared with the venules.

D. the difference in blood volume in the arterioles compared with the venules.

Question 9

Acute **muscular** responses to exercise can involve

A. increased blood flow to working muscles, increased motor unit recruitment, decreased intramuscular substrate levels, increased lactate production and an increase in muscle temperature.

B. increased blood flow to working muscles, increased motor unit recruitment, increased intramuscular substrate levels, increased lactate production and an increase in muscle temperature.

C. increased blood flow to working muscles, increased motor unit recruitment, redistribution of blood flow and increase in blood pressure.

D. increased ventilation, increased cardiac output and increased blood flow.

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Question 10

When a comparison is made between an untrained person and an elite athlete runner of the same age in the same 5km fun run event the following is true of the elite runner.

A. submaximal heart rate is lower, stroke volume is lower

B. submaximal heart rate is higher, stroke volume is lower

C. submaximal heart rate is lower, stroke volume is higher

D. submaximal heart rate is higher, stroke volume is higher

Question 11

To increase a person's Lactate Inflection Point (LIP) the following training is recommended.

A. both elite and non-elite performers should engage in continuous training at or slightly below their LIP

B. both elite and non-elite performers should engage in continuous training at or slightly above their LIP

C. elite performers should engage in continuous training at or slightly below their LIP while non-elite performers should perform continuous training at, or slightly above, their LIP

D. elite performers should engage in continuous training at or slightly above their LIP while non-elite performers should perform continuous training at, or slightly below, their LIP

Question 12

An elite male soccer player is trying to develop their Lactate Tolerance. They perform 6 x 100 metre sprints in 14 seconds. Which of the following recovery times would be the most appropriate after each repetition?

A. 14 seconds

B. 42 seconds

C. 7 seconds

D. 70 seconds

Question 13

The following represents four different resistance training programs.

	% Repetition Maximum	Repetition Range	Sets	Repetition Speed	Rest between sets
Program A	30 - 60	8 - 10	3	as fast as possible	2 – 3 minutes
Program B	80	3 - 6	3	slow to moderate	2 – 3 minutes
Program C	30 - 60	3 - 6	3	as fast as possible	2 - 3 minutes
Program D	80	8 - 10	3	as fast as possible	1 minute

Source: American College of Sports Medicine

The program that is best suited to improving muscular power is represented by

A. Program A.

B. Program B.

C. Program C.

D. Program D.

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Question 14

In goal setting, the 'A' in the acronym SMARTER refers to

A. Accepted.

B. Achievable.

C. Activity.

D. Advantage.

Question 15

Which of the following is **not** a psychological strategy designed to aid recovery?

A. listening to relaxing music

B. PNF stretching

C. sleep

D. meditation

END OF SECTION A
TURN OVER

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SECTION B – Short-answer questions

Instructions for Section B

Answer **all** questions in the spaces provided.

Question 1
Australian athlete Sarah Jamison won a silver medal for the 1500 metre running event at the 2006 Commonwealth Games in a time of 4:06:64. The ability of the body to transport oxygen to the working muscles is important during this event.

a. **i.** Name the structure responsible for transporting oxygen in the blood.

_____

1 mark

ii. Describe one legal and one illegal method an athlete may use to increase the amount of the structure named.

Legal _____

Illegal _____

2 marks

iii. Other than cardiac problems or death, outline one physiological side effect of using this illegal method.

_____

1 mark

b. WADA (World Anti-Doping Agency) was set up in 1999. Outline two reasons that may result in WADA prohibiting a substance or method in sport.

Reason 1 _____

_____

Reason 2 _____

_____

2 marks

c. The Australian Sports Anti-Doping Authority (ASADA) is a Federal Government body that was set up in 2006. Describe two of the roles that ASADA plays in Australian sport.

Role 1 _____

_____

Role 2 _____

_____

2 marks

Total 8 marks

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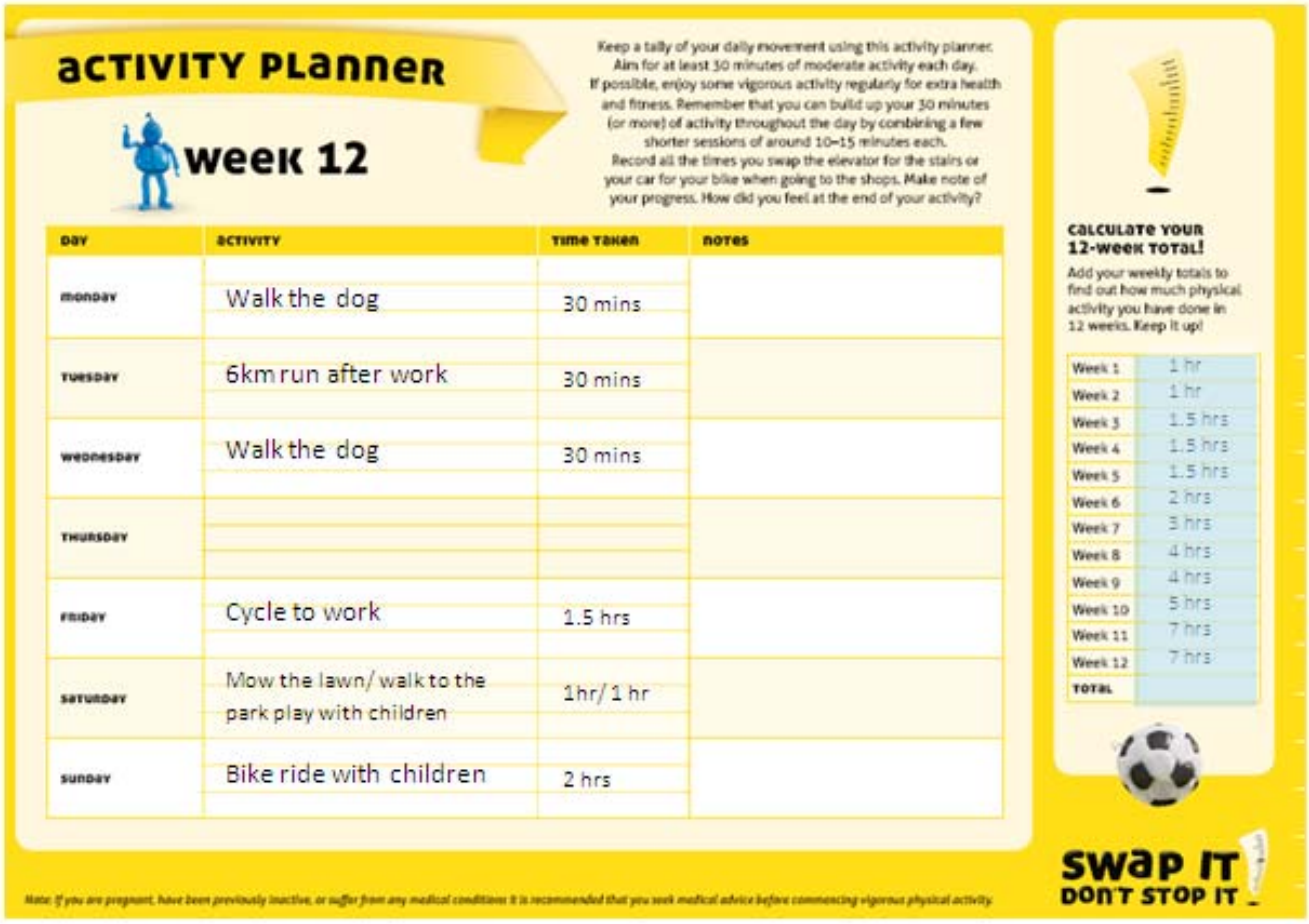
Question 2

The Australian Government initiative "Swap it, Don't stop it" campaign encourages and supports individuals to make modifications to their nutrition and physical activity levels. Part of the program allows for individuals to record and reflect on their current lifestyle habits and adjust accordingly over 12 weeks.

A 35 year old male has been involved in the 12 week plan. Below is a section of his physical activity record for week 12 of the program. Read the information and answer the following questions.



ACTIVITY PLANNER

WEEK 12

Keep a tally of your daily movement using this activity planner. Aim for at least 30 minutes of moderate activity each day. If possible, enjoy some vigorous activity regularly for extra health and fitness. Remember that you can build up your 30 minutes (or more) of activity throughout the day by combining a few shorter sessions of around 10–15 minutes each. Record all the times you swap the elevator for the stairs or your car for your bike when going to the shops. Make note of your progress. How did you feel at the end of your activity?

DAY	ACTIVITY	TIME TAKEN	NOTES
MONDAY	Walk the dog	30 mins	
TUESDAY	6km run after work	30 mins	
WEDNESDAY	Walk the dog	30 mins	
THURSDAY			
FRIDAY	Cycle to work	1.5 hrs	
SATURDAY	Mow the lawn/ walk to the park play with children	1hr/ 1 hr	
SUNDAY	Bike ride with children	2 hrs	

Note: If you are pregnant, have been previously inactive, or suffer from any medical conditions it is recommended that you seek medical advice before commencing vigorous physical activity.

CALCULATE YOUR 12-WEEK TOTAL!

Add your weekly totals to find out how much physical activity you have done in 12 weeks. Keep it up!

Week 1	1 hr
Week 2	1 hr
Week 3	1.5 hrs
Week 4	1.5 hrs
Week 5	1.5 hrs
Week 6	2 hrs
Week 7	3 hrs
Week 8	4 hrs
Week 9	4 hrs
Week 10	5 hrs
Week 11	7 hrs
Week 12	7 hrs
TOTAL	

SWAP IT DON'T STOP IT

(http://swapit.gov.au/downloads/colour/12-week-planner.pdf accessed 1st July 2011.)

a. i. Identify the measurement instrument provided for participants of the 12 week program in the "Swap it, Don't stop it" campaign.

_____

1 mark

ii. List one advantage and one disadvantage of the measurement instrument.

Advantage _____

_____

Disadvantage _____

_____

2 marks

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b. In which week does the individual first meet the National Physical Activity Guidelines for adults? Justify your answer.

Week _____

_____

_____

_____

3 marks

c. Over the twelve week program, there was an increase in the level of participation in physical activity. Using the social-ecological model of influence on physical activity, identify and explain how one key factor/determinant may have influenced the individual male to be involved in a greater level of physical activity.

Factor _____

_____

_____

_____

2 marks

Total 8 marks

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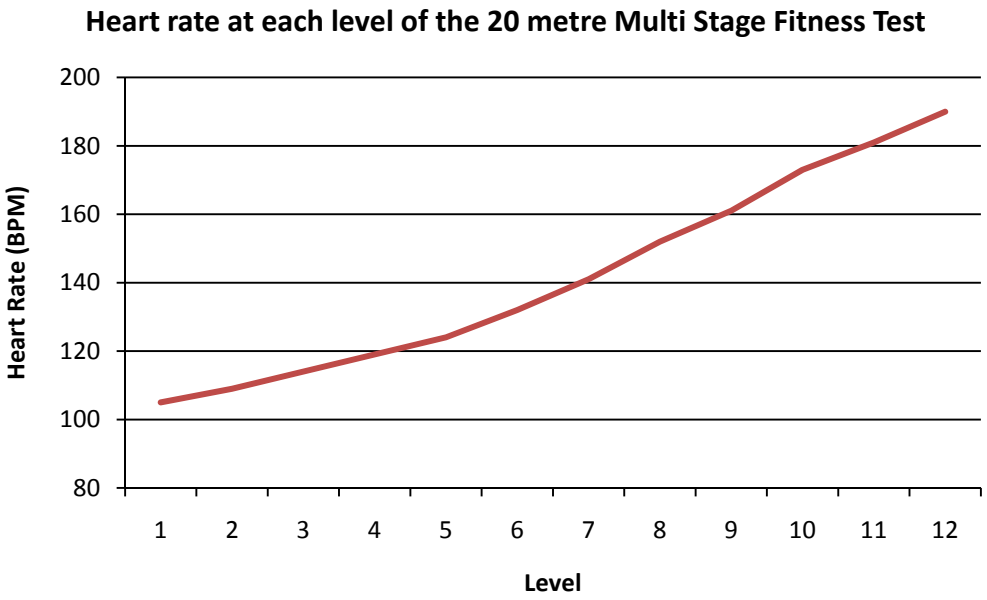
Question 3



The results depicted above are of a 20 year old male university student planning to run in a 10 kilometre Fun Run event. Prior to commencing his training he participated in a 20 metre Multi Stage Fitness Test (MSFT). The student reached level 12.2 in his pre-test.

a. Which fitness component is this test designed to assess?

_____

1 mark

b. **i.** Did the subject reach 'steady state' during the MSFT?

_____

1 mark

ii. Justify your response.

_____

_____

_____

2 marks

c. Provide a suitable test that will give a more accurate/precise reading of the subjects VO_2 maximum.

_____

_____

1 mark

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d. The student lost 5 kilograms in body fat and the volume of oxygen they could consume at maximal levels remained the same. Would you expect their $V0_2$ maximum to increase or decrease? Provide a detailed explanation for your choice.

$V0_2$ maximum would _____

Justification _____

_____

_____

_____

1 + 2 = 3 marks

e. It was suggested that the subject complete an active recovery at the completion of the test.

i. Outline the process involved in an active recovery.

_____

_____

1 mark

ii. Explain the purposes of an active recovery.

_____

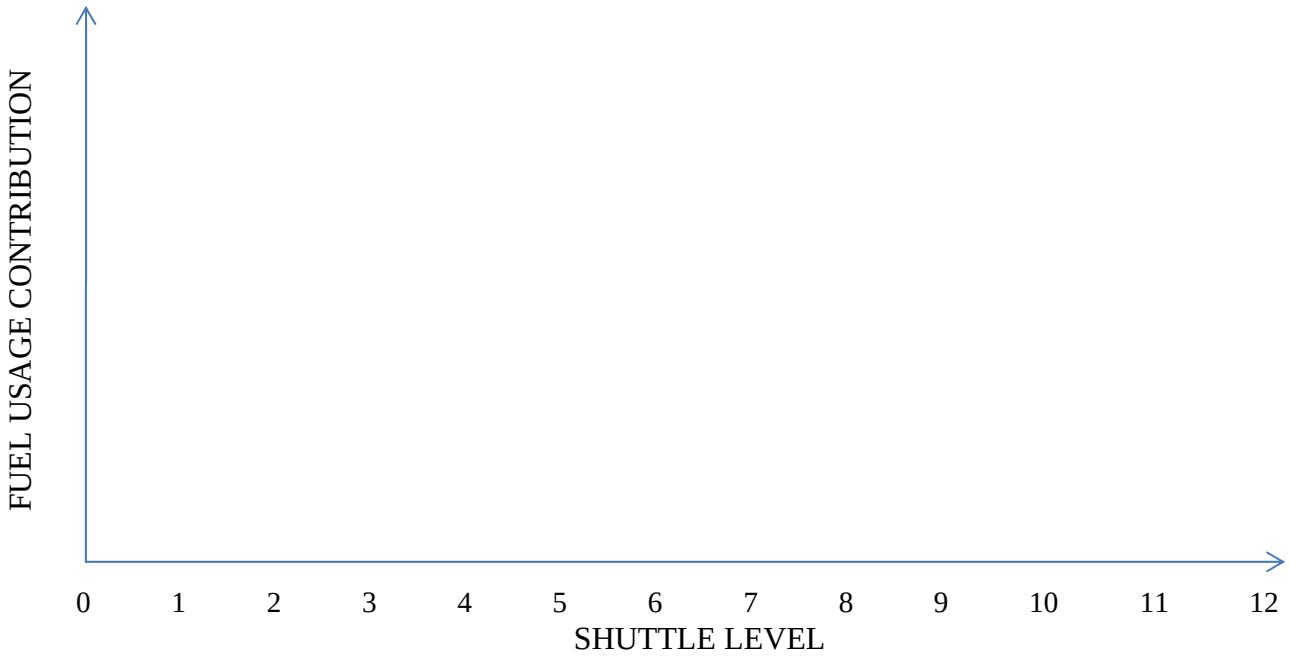
_____

_____

2 marks

f. During the 20 metre MSFT carbohydrates and fats will be utilised by the aerobic energy system.

i. On the graph below, draw the likely interplay of these two food fuels during the MSFT.



2 marks

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ii. Discuss the fuel interplay used in the 20 metre MSFT.

_____

_____

_____

_____

2 marks

g. After a 6 month training program, the subject repeated the MSFT and recorded a score of Level 13.4.

i. Identify two respiratory adaptations that would occur as a result of undertaking this six month training program.

Adaptation 1 _____

Adaptation 2 _____

2 marks

ii. Identify two training methods specific to this student in order to **improve** the MSFT result.

Training method 1 _____

Training method 2 _____

2 marks

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iii. Referring to one of these training methods, complete the table below giving accurate information about Frequency, Intensity (% maximum heart rate) and Duration of your selected method.

Training method _____

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

4 marks

Total 23 marks

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Question 4
A recent article in the Herald Sun "Kids get active if parks nearby" (Wednesday 23rd February, 2011, p.27), has "identified a link between activity levels and the quality and availability of public open space and parks".

a. Describe how parks and open spaces could contribute to improved physical activity levels of a local community.

_____

_____

_____

2 marks

b. Outline one strategy the Government may use to maximise the use of parks and open spaces in communities.

_____

_____

1 mark

c. Describe one way the Government could assess whether the initiative to maximise usage of parks and open spaces was successful.

_____

_____

1 mark

d. The National Heart Foundation, together with the Australian Local Government Association, and the Planning Institute of Australia have collaborated on the 'Healthy Spaces and Places' initiative. Part of this initiative is to create environments that promote physical activity.

Why would the National Heart Foundation be involved in a program such as the 'Healthy Spaces and Places' initiative?

_____

_____

2 marks

Total 6 marks

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Question 5

Samantha Hamill was a member of the Australian Commonwealth Games team that competed in Delhi in 2010. Samantha's events included the 400 metre individual medley. She finished 2nd in a time of 4:39:45 seconds. The event requires competitors to swim four swimming strokes each over 100 metres – butterfly, backstroke, breaststroke and freestyle. With knowledge of the three energy systems, discuss their interplay in bringing about a successful performance in this event.

6 marks

Total 6 marks

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Question 6
Samuel Wanjiru of Kenya won the Olympic Marathon in Beijing 2008 in an Olympic record time of 2 hours, 6 minutes and 32 seconds. The event was held in hot and humid conditions. In preparation for the event Samuel regularly trained over 160 kilometres per week.

a. Which energy system is likely to predominate in the marathon?

_____

1 mark

b. Samuel's training would have an effect on the way the body uses fats and carbohydrates to provide the energy required during his marathon.

i. Explain how his training will impact on the way these two fuel sources are used during the marathon.

_____

_____

_____

_____

_____

2 marks

ii. Discuss how this training will bring about a change in his performance.

_____

_____

_____

_____

2 marks

c. Elite endurance athletes like Samuel Wanjiru will carbohydrate (CHO) load before their event. Outline the dietary **and** training strategies that should be used in conjunction with CHO loading.

Dietary _____

_____

Training _____

_____

2 marks

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d. **i.** Other than the associated benefits of increasing muscle and liver glycogen stores, describe one advantage of CHO loading and how it assists performance.

Advantage _____

_____

_____

3 marks

ii. Outline two disadvantages that may be associated with CHO loading.

Disadvantage 1 _____

_____

Disadvantage 2 _____

_____

2 marks

e. Other than CHO and fat, identify another food fuel that the aerobic energy system can utilise to resynthesise ATP during a marathon.

_____

1 mark

f. **i.** Identify two **muscular** adaptations that are likely to have occurred as the result of Samuel's training for a marathon.

Adaptation 1 _____

_____

Adaptation 2 _____

_____

2 marks

ii. Select one adaptation and provide a detailed explanation of how this will enable improved performance.

_____

_____

_____

_____

2 marks

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g. Jaouad Gharib from Morocco was only 18 seconds behind Samuel Wanjiru at 40 kilometres. In the final 2.2 kilometres Samuel extended the lead to finish the 42.2 kilometre marathon 44 seconds faster. Both Jaouad and Samuel have similar VO_2 maximums.

i. Other than **psychological** factors, what distinguishing factor is likely to have enabled Samuel to win the race over Jaouad?

_____

1 mark

ii. Explain how this would enable Samuel to win the race.

_____

_____

_____

_____

2 marks

h. During a marathon athletes will employ strategies to avoid dehydration. Explain how dehydration can lead to a decrease in athletic performance.

_____

_____

_____

2 marks

Total 22 marks

Question 7

A class of Year 12 students undertook a Cycle-Spin class at the local gymnasium. This class consisted of 45 minutes of continuous cycling mixed with random bursts of speed. During the class the instructor varied the intensity of the movements and instructed the students to increase or decrease the resistance on their stationary bikes. The session included a 5 minute warm up and a 5 minute cool down that included stretching.

a. During the 5 minute warm up, acute changes occurred within each students' body. Complete the table below using the words **increase**, **decrease** and **stay the same** to indicate what is likely to occur within the students' body.

Respiratory Rate	
Diastolic Blood Pressure	
Stored ATP	
Motor Unit Recruitment	
a-VO_2 difference	

5 marks

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b. Clearly outline the purpose of vasoconstriction and vasodilation during the 45 minute Cycle-Spin class.

_____

_____

_____

_____

2 marks

c. The 45 minute Cycle-Spin class was held indoors. Despite the use of fans, the temperature inside the room was 30 degrees Celsius. Following the class students drank fluids.

i. Circle which type of fluid would maximise the students' recovery immediately after the class**.**

A. water
B. hypotonic drink
C. isotonic drink
D. hypertonic drink

1 mark

ii. Justify your choice.

_____

_____

2 mark

d. What is the function of stretching during a 'cool down'?

_____

_____

_____

2 marks

Total 12 marks

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Question 8

An umpire of Australian Rules Football (AFL) immediately prior to bouncing the ball as high as possible.

a. Referring to the photo above, identify two fitness components that would be most important in bouncing the ball and explain why they are important in this action.

Fitness component 1 _____

_____

_____

Fitness component 2 _____

_____

_____

4 marks

b. AFL umpires often comment that bouncing the ball is a very difficult skill to perform throughout the duration of a game of football, sometimes resulting in feelings of stress. Describe one **psychological** strategy that an umpire could employ **during** a game that lead to improved performance.

_____

_____

_____

2 marks

Total 6 marks

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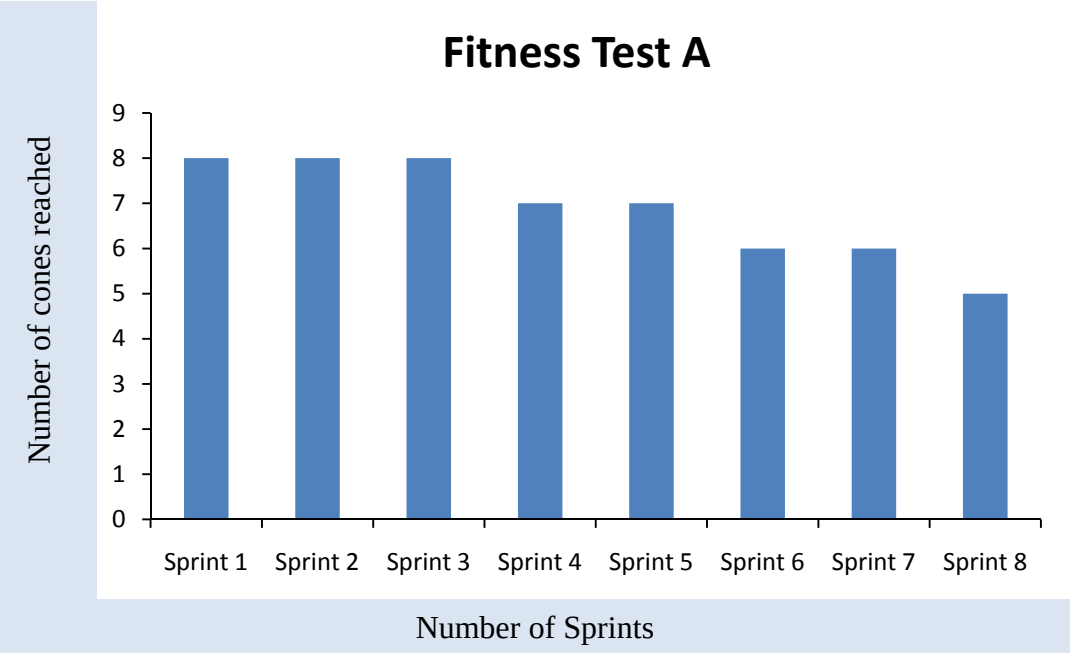
Question 9

The results from a Year 12 physical education student for Fitness Test A are presented below. This test involved the subject completing 8 x 5 second sprints with 25 seconds recovery following each sprint. The subject is sprinting towards cones, the first cone is 25 metres from the start line, and each subsequent cone is 2 metres further away. The aim of the test is to make as many cones as possible in each 5 second sprint.



a. **i.** What is the name of this test?

_____

1 mark

ii. With reference to the work to rest ratio of this test, specify the predominant energy system involved.

_____

_____

2 marks

iii. As the test progresses the subject's ability to reach the same cone decreases. With specific reference to the dominant energy system and the recovery time allowed after each sprint in this test, justify the trend shown in the above graph.

_____

_____

_____

_____

_____

3 marks

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iv. When post-testing, outline two factors that would need to be considered to improve the **reliability** of this test.

Factor 1 _____

_____

Factor 2 _____

_____

2 marks

b. Having an efficient aerobic energy system is beneficial to a successful performance in this test. Outline two reasons for this.

Reason 1 _____

_____

Reason 2 _____

_____

2 marks

Total 10 marks

Question 10

The Bike Share program in Melbourne is a joint initiative between the Victorian Government, VicRoads and RACV. Users can hire a bike in the City of Melbourne from one of 50 stations and return it to another station close to their destination. The stations are located at popular tourist sites, close to major transport and many of the busy workplaces of the city.

a. In the table below identify one factor that impacts on each component of the social-ecological model to be involved in the Bike Share program.

Individual	Social Environment	Physical Environment	Policy

4 marks

b. Discuss one reciprocal relationship that exists in the Bike Share program.

_____

_____

_____

2 marks

Total 6 marks

SECTION B – continued
TURN OVER

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Question 11
Sally Pearson is a track and field athlete who competed in three events at the 2010 Delhi Commonwealth Games; the 100 metre hurdles, 100 metre sprint, and she was a late inclusion in the 4 x 400 metre relay. Sally won gold in the 100 metre hurdles event. Plyometrics is a training method that Sally regularly uses to improve her skill in the hurdle event.

a. **Describe** one plyometrics exercise that Pearson may use to improve her performance in the 100 metre hurdles.

_____

_____

1 mark

b. Plyometrics training is used no more than two to three times per week. Outline a likely reason as to why plyometrics would be utilised less frequently.

_____

_____

1 mark

c. Other than plyometrics training, identify one other suitable training method Pearson could use when training for the 100 metre hurdles.

_____

1 mark

d. Pearson was controversially included in the team for the final of the women's 4 x 400 metre relay, an event she had not trained for, and collapsed after running her leg of the race. The Australian team finished in fifth place. Outline a training method that Pearson might have undertaken if she was training for the 400 metre event that would be different to her hurdles training.

_____

_____

1 mark

e. Outline two training principles a coach should ensure his athletes are aware of during their 'off season'.

Training principle 1 _____

Training principle 2 _____

2 marks

Total 6 marks

End of Question and Answer Book

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