



Western Australian Certificate of Education Examination, 2010

Question/Answer Booklet

PHYSICAL EDUCATION STUDIES

Stage 3

Please place your student identification label in this box

Student Number: In figures

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In words

Time allowed for this paper

Reading time before commencing work: ten minutes
Working time for paper: two and a half hours

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer Booklet
Multiple-choice Answer Sheet

To be provided by the candidate

Standard items: pens, pencils, eraser, correction fluid/tape, ruler, highlighters
Special items: non-programmable calculator

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

Structure of the examination

The Physical Education Studies examination comprises a written examination worth 70 per cent of the total examination score and a practical (performance) examination worth 30 per cent of the total examination score.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of total exam
Section One: Multiple-choice	15	15	20	15	10.5
Section Two: Short answer	8	8	70	45	31.5
Section Three: Extended answer	4	2	60	40	28
				Total	70

Instructions to candidates

- The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2010*. Sitting this examination implies that you agree to abide by these rules.
- Answer the questions according to the following instructions.

Section One: Answer all questions on the separate Multiple-choice Answer Sheet provided. For each question shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. If you make a mistake, place a cross through that square, do not erase or use correction fluid, and shade your new answer. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Sections Two and Three: Write answers in this Question/Answer Booklet.

- You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
- Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.
 - Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
 - Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

See next page

Section One: Multiple-choice

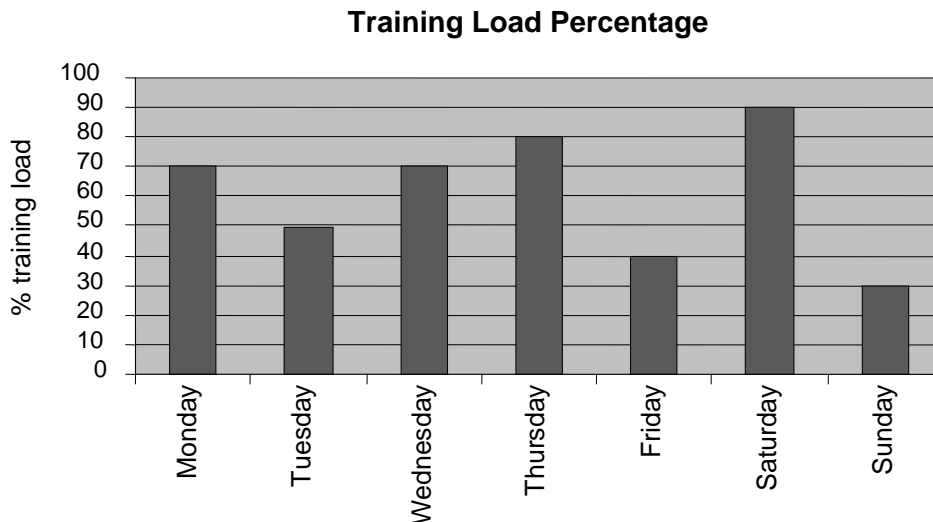
10.5% (15 Marks)

This section has **15** questions. Answer **all** questions on the separate Multiple-choice Answer Sheet provided. For each question shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. If you make a mistake, place a cross through that square, do not erase or use correction fluid, and shade your new answer. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Suggested working time: 20 minutes.

1. The relationship of impulse to momentum is best explained in which of the following sporting examples?
- (a) a fast heavy rugby player knocking a tackler to the ground
 - (b) a tall fielder leaping to catch a high cricket ball
 - (c) a golf ball in flight
 - (d) a rugby ball carried over the touchline

2.



This graph illustrates variations in training load percentage for an athlete. This is referred to as a

- (a) macro cycle.
 - (b) meta cycle.
 - (c) micro cycle.
 - (d) meso cycle.
3. Despite working hard on his leg strength, a teenage soccer goalkeeper fails to intercept balls kicked wide to the corners of the goal mouth. Which of the following combinations of training would provide the improvement he now seeks?
- (a) strength and flexibility
 - (b) balance and speed
 - (c) speed and flexibility
 - (d) balance and flexibility

See next page

4. Protein as a food source for physical activity is
- (a) best replaced immediately after a workout.
 - (b) provided by bananas, sports bars and sports drinks.
 - (c) important for muscle tissue repair.
 - (d) eaten as a pre-game meal for explosive sports.
5. During the pre-season, the coach conducts a meeting with the players to discuss their hopes and priorities for the season. This is an example of
- (a) a sociogram analysis.
 - (b) an ethical conduct analysis.
 - (c) applying Carron's model to group dynamics.
 - (d) using Appreciative Inquiry methods.
6. Which example best demonstrates segmental interaction?
- (a) speed of the racquet head, to the hand, to the arm, to the shoulder, to the body in a tennis forehand drive
 - (b) rotation of the hips, rotation of wrists, the uncoiling of the shoulders, straightening of the right arm and wrist in a golf swing
 - (c) shifting body weight forward, rotation of the hips, body and shoulders, extension of the arm, snap of wrist in a throw
 - (d) rotation of the hips, movement of the body weight across base of support, rotation of the shoulders, the arm and bat swing in a cricket stroke
7. A training session in which athletes practise five different skills in a 15-minute period is structured as
- (a) part rather than whole practice.
 - (b) speed rather than accuracy practice.
 - (c) variable rather than specific practice.
 - (d) overload rather than paced practice.
8. Mental skills training is best applied at what stage during the season?
- (a) in the lead up to the finals
 - (b) when early season form turns to mid-season slump
 - (c) at the start of the season when goals are being set
 - (d) ongoing through all stages of the season
9. An adolescent gymnast has been recovering from a shoulder injury for the past six weeks and is struggling to regain her fitness in time for a major competition. Which of the following test combinations would be the most effective in ensuring she was fit for the competition?
- (a) skinfold and motor agility tests
 - (b) strength and flexibility tests
 - (c) mental toughness and sit and reach tests
 - (d) balance and strength tests

10. A coach who states 'I would rather coach a champion team than a team of champions' demonstrates an understanding of the factors in
- change management models.
 - sociogram analysis and role modelling.
 - group cohesion models.
 - a coach's code of ethics.
11. When athletes are exercising and performing in different environmental conditions, which statement below is the **most** correct?
- Athletes are not vulnerable to dehydration in cold and humid conditions.
 - It is more difficult for athletes to adapt to long-term cold than heat.
 - It is more difficult for athletes to adapt to long-term heat than cold.
 - Athletes are not vulnerable to dehydration in hot and humid conditions.
12. Australian tennis champion Lleyton Hewitt is often heard yelling 'C'mon' after winning an important point in tennis matches. This is an example of
- self talk.
 - performance routines.
 - imagery.
 - goal setting.
13. After an extended layoff due to a leg injury, Jack is determined to regain his cardiovascular endurance and consults a personal coach. The coach teams Jack with another athlete for Jack's twice weekly self-organised sessions. With reference to the transtheoretical model of behaviour change, the personal coach is applying this strategy to
- build Jack's personal resilience.
 - strengthen problem solving in the contemplation phase.
 - use social support in the maintenance phase.
 - reduce the time in the preparation phase.
14. A young player who learns to execute a skill with an efficient and correct biomechanical technique is likely to
- risk an acute injury.
 - avoid chronic injury.
 - have more enjoyment and less competition anxiety.
 - develop a chronic injury through overuse of the same muscles.
15. Which combination of factors in the table below will result in the highest angular inertia in the swing of a softball bat?

	Bat Length (cm)	Weight classification	Weight distribution	Rate of swing
(a)	107	heavy	mid zone	slower
(b)	84	medium	end	fast
(c)	84	medium	mid zone	fast
(d)	64	light	end	very fast

End of Section One

See next page

Section Two: Short answer

31.5% (45 Marks)

This section has **eight (8)** questions. Answer **all** questions. Write your answers in the spaces provided in this Question/Answer Booklet. Wherever possible, confine your answers to the line spaces provided. Use a blue or black pen (**not** pencil) for this section.

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Suggested working time: 70 minutes.

Question 16

(8 marks)



To lift the combined mass of the bar, the athlete shown in the picture above uses strength and power.

- (a) Define Newton's Second Law of Motion and explain it in relation to the acceleration of the bar and its weights. (2 marks)

- (b) The amount of energy exerted by the muscles on the bar and its weights is dependent on three mechanical characteristics of muscle. Explain what these are. (3 marks)

- (c) Use the sliding filament theory to explain how contraction occurs in skeletal muscle. You may use a diagram as part of your answer. (3 marks)

Explanation:

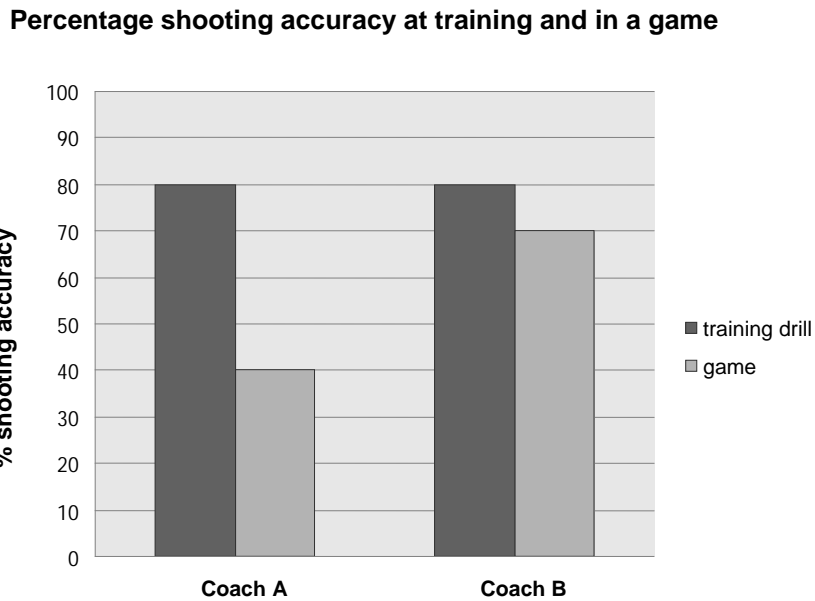
Diagram:

Question 17

(5 marks)

Netball is an invasion game in which shooters try to position for goal shots as close to the post as possible but defenders try to force goal shots from the furthest distance possible. In order to improve the goal-scoring accuracy of their shooters in games, Coach A and Coach B design drills that employ either variable or specific practice at training.

Considering the graph below which shows the performance of A and B's goal shooters in practice and in a game, identify which skill training strategy each coach used and explain why one practice method was superior to the other in producing better shooting accuracy in the game.



See next page

Question 19

(5 marks)

Because of age, nagging recurring injuries and reduced success, Maree is reaching the end of a highly-successful professional swimming career and thinking about how to manage her transition to retirement from sport. She is concerned about losing fitness and gaining weight.

- (a) Using your knowledge of the transtheoretical model of behaviour change, determine the stage Maree is currently demonstrating and outline the key characteristics of this stage. (2 marks)

- (b) Using specific examples, describe the additional stages Maree would eventually move through to achieve a successful transition to retirement. (3 marks)

Question 22

(5 marks)

A ball's flight pathway is affected if it is spinning. Using a labelled diagram to assist, identify and explain the biomechanical principle that causes a deviation in the flight path.

Draw your diagram here

Explanation:

Question 23

(5 marks)

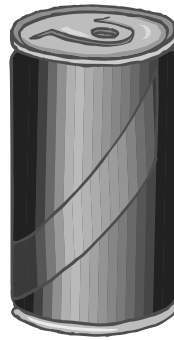
Midfield players at the elite level in sports such as soccer or Australian Rules football often cover many kilometres during a game. Fluid replacement and energy intake during the game are important for optimum performance.

- (a) Considering the relative merits of each drink below, explain which is the least suitable and which is the most suitable as a fluid replacement beverage for midfield players.

(2 marks)



Electrolyte drink



Energy drink



Water

- (b) Considering energy depletion during a two-hour game of intense activity, how can these players make the best use of the Glycaemic Index food system to maximise their performance?

(3 marks)

End of Section Two

See next page

Section Three: Extended answer**28% (40 Marks)**

This section contains **four (4)** questions. You must answer **two (2)** questions. Write your answers in the space provided.

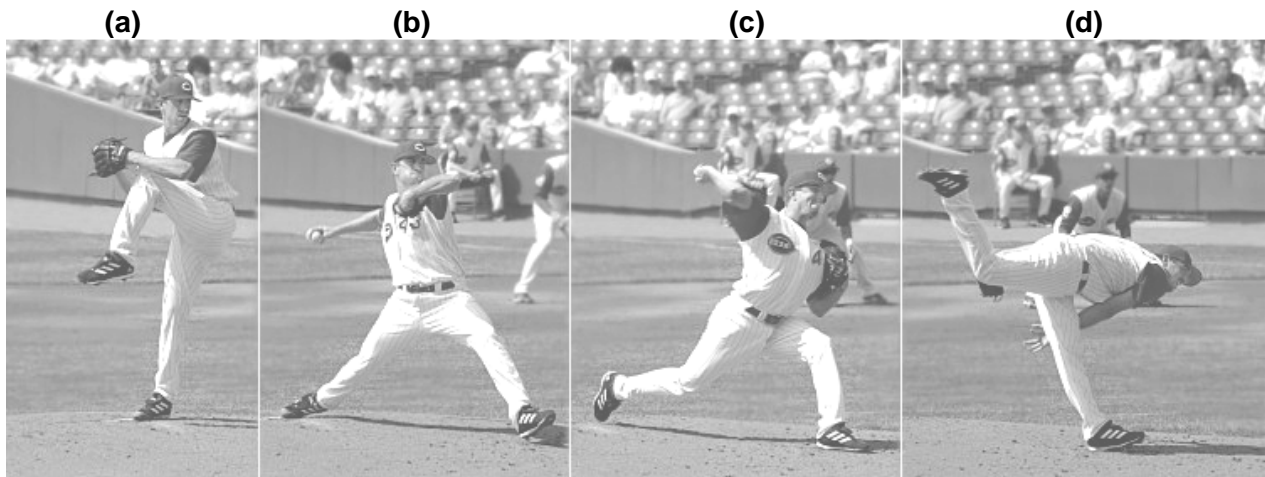
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Suggested working time: 60 minutes.

Question 24**(20 marks)**

An integral aspect of a training program is the analysis of skills and the selection of appropriate skill improvement strategies. Consider the images of a baseball pitch (overarm throw) shown below.



- (a) With examples related to throwing, outline the key tasks in qualitative analysis that a pitching coach should undertake to evaluate this throwing action. (8 marks)
- (b) Explain **three (3)** biomechanical principles the baseball pitcher is applying to produce maximum velocity on the ball and discuss how balance, speed, strength or flexibility interact with these principles to improve the pitcher's throw. (12 marks)

and/or

See next page

Question 25**(20 marks)**

For his general fitness, Bob (a 40-year-old) usually swims twice a week for 45 minutes. In six months' time he aims to compete in a State veterans 20 km cross-country running event of about two hours' duration. The run is to be over hilly terrain with uneven tracks. Although he has reasonable cardiovascular fitness, he has not done much weight-bearing exercise over the past 10 years and is 15 kg over his optimum weight. He is seeking advice on how to set up an holistic training regime that develops his fitness and motor skills for the run. He is cautious about starting 'too hard, too soon'.

Based on motor learning and physiological training principles:

- analyse Bob's current skill and fitness capacities
- contrast these with what he will need for the cross-country event
- address the implications of being cautious in his training regime
- outline short-term and long-term holistic goals that address at least two areas of his training
- suggest strategies that he could use to self-monitor his improvement and self-correct his performance.

and/or

Question 26**(20 marks)**

Consider elite sports teams that train and compete outdoors in hot/dry conditions, as opposed to teams that train and compete in extremely cold/wet conditions. The impact of environmental conditions needs to be considered by a coach in designing the physical and mental training program for a whole season (for weekly fixtures plus finals) to ensure players are performing at their peak for the whole season.

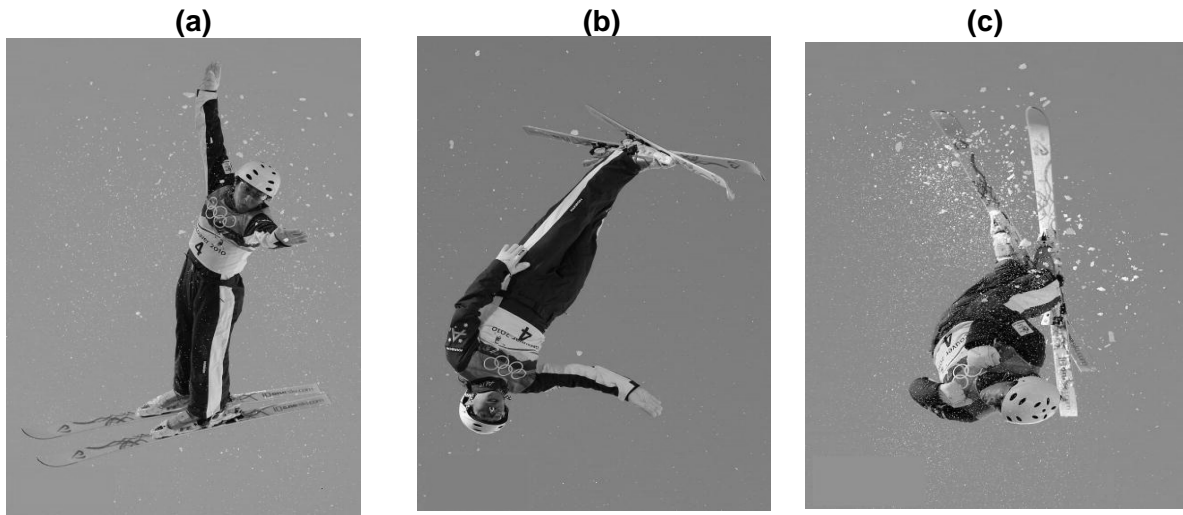
In reference to **five (5)** key training principles, explain and justify any adaptations to the physical and mental program that should be made because of these contrasting environmental conditions. Elaborate your answer with specific examples.

and/or

Question 27

(20 marks)

The photos below show Australian aerial skier Lydia Lassila performing her gold medal-winning jump in the Freestyle Aerial ski event at the 2010 Winter Olympic Games. This event is often referred to as 'diving on skis'. It requires athletes to ski down a slope, take off into the air, perform multiple acrobatic manoeuvres (rotating and twisting movements) and then finish with a safe landing. Athletes are judged on the quality of the take-off, the height and distance of the jump, the form and body position in flight, and the landing.



Lydia was competing this year after coming back from two knee reconstructions. She had injured her knees in the same event four years earlier. She has stated that her success was all about 'mental toughness and control and going into autopilot while in the air'.

- (a) Define **four (4)** different mental strategies Lydia may have used during the Olympic competition period to enable her to achieve a gold medal-winning performance. Discuss an application to the event for each of these four strategies. (12 marks)
- (b) Freestyle Aerial skiing requires skills to be performed in a layout position (that is, no tucking of legs) with rotating and twisting movements on three different axes (see photos). Discuss the major biomechanical principles that apply during flight for the successful performance of aerial skills such as these. (8 marks)

End of questions

ACKNOWLEDGEMENTS

Section Two: Short Answer

- Question 16** (n.d.). Weightlifters performing a dead lift [Photograph]. Retrieved April, 2010, from http://www.mensfitness.com/fitness/beginner_weight_training/307
- Question 18** Carr, G. A. (2004). *Sport Mechanics for Coaches* (2nd ed.). Human Champaign, IL.: Kinetics, p. 201.
- Question 20** Sociogram diagram. (2005). [Image] <http://www.sims.monash.edu.au/subjects/ims5023/files/week12/Week12-2005.htm>

Section Three: Extended Answer

- Question 24** Dikeman, R . (2004). Baseball pitching motion [Photographs]. Retrieved April, 2010, from http://commons.wikimedia.org/wiki/File:Baseball_pitching_motion_2004.jpg
- Question 27** Spencer, C. (2010). Aerial skier (a) [Photograph]. Retrieved April, 2010, from <http://www.life.com/image/96901954>
- Spencer, C. (2010). Aerial skier (b) [Photograph]. Retrieved April, 2010, <http://www.life.com/image/96901063>
- Spencer, C. (2010). Aerial skier (c) [Photograph]. Retrieved April, 2010, <http://www.life.com/image/96901004>

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