NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2011

SPORT AND EXERCISE SCIENCE: PAPER II

EXAMINATION NUMBER												

Time: 2 hours 150 marks

ANSWER BOOKLET

There are 8 (i – viii) pages in this Answer Booklet.

QUESTION 7 MULTIPLE CHOICE

Ten multiple choice questions are given below. Choose the **most correct** option in each question and write its letter in the space provided in the table.

7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	7.10

7.1 **Abduction** involves:

A Moving a limb towards the middle of the body.
B The ability to change the position of the body quickly.
C Moving a limb away from the middle of the body.
D Exercising for long periods of time.
E Maintaining body control when there is a tendency to fall. (1)

7.2 **Dorsiflexion** involves:

A Performing a movement quickly.
B Stretching muscles through a large range of movement.
C The opposite movement of plantar flexion of the foot.
D The amount of weight lifted in an exercise.
E Allowing movement through the range of motion. (1)

7.3 **Angular motion** is motion that occurs:

A In a straight line.
B At right angles.
C At a knee joint.
D When the body moves in the same direction.
E Around an axis. (1)

7.4 An **abrasion** is a term used to describe:

A Ruptured blood vessels.
B Superficial injury of the epidermis.
C Muscles in spasm.
D Muscle soreness.
E Blisters caused by friction. (1)

7.5 The **Drive Theory of Arousal** indicates:

A A relationship between performance and arousal.
B A positive relationship between motivation and arousal.
C A negative relationship between motivation and arousal.
D A relationship between anxiety and motivation.
E A relationship between stress and anxiety. (1)

7.6 The **Law** that states that the acceleration of an object is directly proportional to the force acting on it is:

A Newton's 1st Law
B Newton's 2nd Law
C The Law of Stability
D The Law of Inertia
E Newton's 3rd Law (1)

7.7 Goal setting uses the **SMARTER** principle. The **'M'** in the anagram represents:

A Marketable
B Memorable
C Measurable
D Modern
E Medical (1)

7.8 A ***laissez-faire*** style of leadership is:

A A partnership.
B Task centred.
C People centred.
D Shared decision making.
E Laid back. (1)

7.9 **Screening** an athlete aims to:

A Develop the athlete's attitude.
B Identify an athlete's potential.
C Teach the athlete skills.
D Improve the athlete's communication.
E Engage the athlete with non-athletes. (1)

7.10 **Injury management** is a process whereby:

A An injury is treated.
B The type of injury is documented.
C The cause of injury is identified.
D The return to full recovery is progressively managed.
E All of the above. (1)

[10]

QUESTION 8 DEFINITIONS

8.1 Define: **Centre of Gravity**

_____

_____ (2)

8.2 Define: **Hypoglycaemia**

_____

_____ (2)

8.3 Define: **'delayed onset of muscle soreness'** (DOMs)

_____

_____ (2)

8.4 Define: **Osteoporosis**

_____

_____ (2)

[8]

QUESTION 9

9.1 9.1.1 Plot the likely position where the centre of gravity is for each player on the photographs provided. (2)

9.1.2 Which player is more stable? A or B?

_____ (1)

9.1.3 Explain why the player (A or B) is more stable.

_____

_____ (3)

9.1.4 What effect does a change in body position have on the centre of gravity?

_____

_____ (2)

9.1.5 These photographs are good examples of static and dynamic balance. In this game, as in most sports, being **in balance**, while executing a skill, is essential. Explain.

_____

_____

_____

_____ (4)

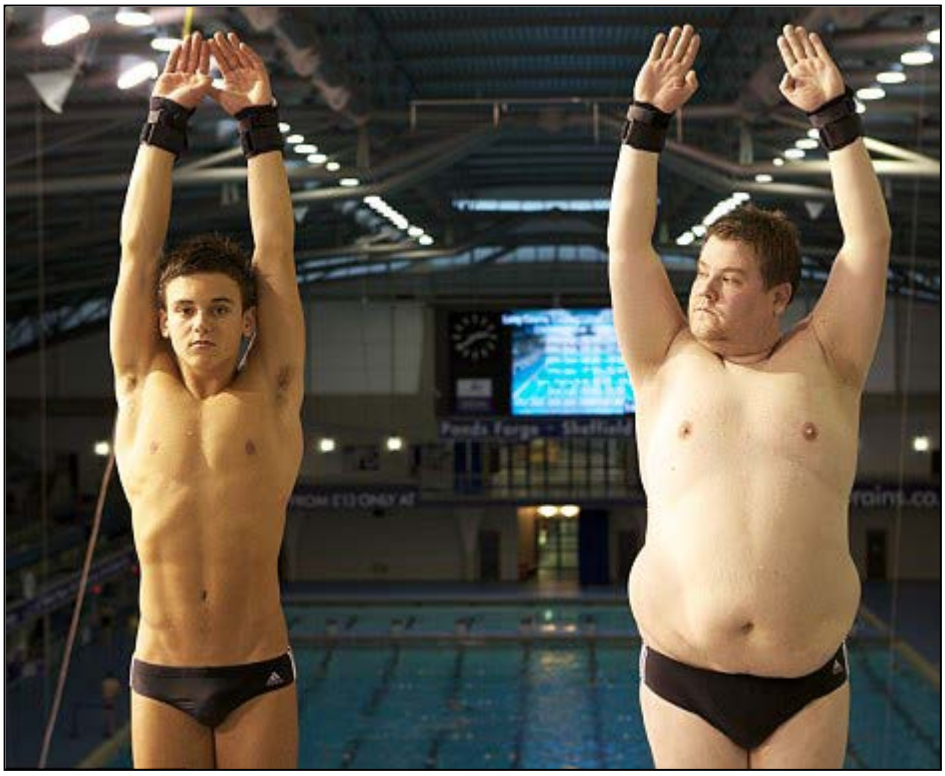
Player A

Player B

[Pictures: by examiner]

9.2

A **B**



[http://www.google.co.za/imgres?dailymale.co.uk/i/pix. Accessed 3 June 2011]

9.2.1 Which person (illustrated above) has the greatest inertia? A or B?

_____ (1)

9.2.2 Using Newton's 1st Law, explain which of these two people (illustrated above) would be more likely to fall over if they were to collide? A or B?

_____

_____

_____ (3)

9.2.3 In the sport rugby there are advantages and disadvantages of having large inertia. List one of each.

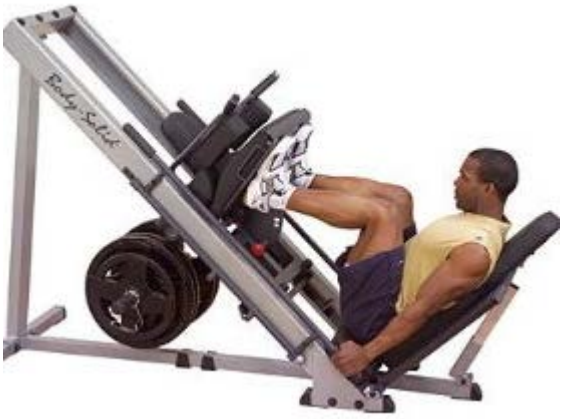
Advantage	Disadvantage

(2)
[18]

QUESTION 10

Study the **sequence** of movement illustrated in Diagram A and Diagram B. Identify the type of movement occurring across the knee and hip joints, the muscles involved and the joint type which permits the movement. Complete the table below.

Diagram A



[http://www.google.co.za/imgres?imgurl=http://legpressequipment.com/wp. Accessed 3 Feb 2011]

Diagram B

[http://www.google.co.za/imgres?imgurl=http://www.criticalbench.com/exercises/pics/leg-press1. Accessed 3 February 2011]

Movement type	Movement permitted	Main muscles involved	Joint type
Knee in diagrams A and B			
Hip in diagrams A and B			

[6]

QUESTION 11

11.1 Draw in the flight path of a tennis ball hit with a '**top spin**' showing the rotation of the ball and the resistance of the air.

[http://www.google.co.za/imgres?imgurl=http://www.iconarchive.com/icons/icons-land/sport/256/Tennis-Ball-icon. Accessed 7 February 2011]

(3)

11.2 What is the advantage of applying '**top spin**' to a tennis ball in the game of tennis?

_____

_____ (2)

[5]

QUESTION 12

[http://www.google.co.za/imgres?imgurl=http://media-cdn.tripadvisor.com/media/photos/01/1a/73/77/yes-white-water-rafting.jpg. Accessed 7 February 2011]

12.1 Study the photograph above then insert the appropriate word (Fulcrum, Force, Resistance) in the provided spaces which illustrates your understanding of the:

Fulcrum
Force
Resistance (3)

12.2 Applying your knowledge of **levers**, explain how an oar can be adapted to suit a junior rower.

_____ (1)

12.3 How would this adaptation advantage the junior rower?

_____

_____ (2)

12.4 Explain the effect of **lever length** in the following sporting applications:

12.4.1 Short lever – the short-limbed weightlifter

_____

_____ (2)

12.4.2 Longer lever – long-armed swimmer

_____

_____ (2)

12.5 Different sports are played on different surfaces.

12.5.1 Rank the following 3 surfaces in order of **most-to-least** ground reaction forces, applied to a runner wearing ordinary running shoes.

(a) Sand
(b) Wood
(c) Asphalt/tar

Rank	Surface
1st	
2nd	
3rd	

(3)

12.5.2 Which of the above mentioned surfaces would resist the most vertical forces when running?

_____ (1)

12.5.3 Why do you say this?

_____

_____ (2)

12.5.4 What are the advantages and disadvantages of this surface for court sports?

_____

_____

_____

_____ (4)

[20]

Total: 150 marks