



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2011

SPORT AND EXERCISE SCIENCE: PAPER I

EXAMINATION NUMBER

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Time: 2 hours

150 marks

ANSWER BOOKLET

There are 6 pages (i – vi) in this Answer Booklet.

QUESTION 8

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.

8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	8.10

8.1 The sport an **endomorph** is best suited to is ...

- A high jump.
- B sprinting.
- C golf.
- D open water swimming.
- E netball. (1)

8.2 The **Alactic system** is used ...

- A when swimming 100 m.
- B after 8 – 10 seconds of maximum effort.
- C when pyruvic acid is converted to lactic acid.
- D when hydrogen is given off.
- E during the Krebs cycle. (1)

8.3 **Glycolysis** involves the ...

- A breakdown of pyruvic acid into carbohydrates.
- B conversion of pyruvic acid into citric acid.
- C mitochondria splitting into H⁺ and H⁻.
- D breakdown of carbohydrates into pyruvic acid.
- E breakdown of ADP. (1)

8.4 **Carbohydrates** that are eaten in the form of starch or sugar, are stored ...

- A in the kidneys.
- B in the liver as glycogen.
- C as fat around the muscle cell.
- D as lactic acid.
- E with hydrogen. (1)

8.5 **Proteins** are chemical compounds composed of ...

- A simple sugars and complex starches.
- B triglycerides.
- C chains of amino acids.
- D electrolytes.
- E glucose and fructose. (1)

8.6 **EPOC** is ...

- A Excessive Pre-exercise Oxygen Consumption
- B Extreme Post-exercise Oxygen Consumption
- C Even Premature Oxygen Consumption
- D Excess Pre-exercise Oxygen Conversion
- E Excess Post-exercise Oxygen Consumption (1)

8.7 **Hypothermia** is ...

- A when the body experiences excessive cooling.
- B when the body experiences excessive overheating.
- C when the body sweats excessively.
- D when the athlete's pulse is strong and rapid.
- E when the athlete becomes flushed after intense exercise. (1)

8.8 A **kilocalorie** is ...

- A 100 calories.
- B 1 000 calories.
- C 10 calories.
- D 10 000 calories.
- E 110 calories. (1)

8.9 **Ballistic stretching** involves ...

- A moving into a position that moves the joint beyond its point of resistance.
- B holding a stretch position for 10 seconds.
- C a bouncing, dynamic movement.
- D a partner stretching the athlete beyond the resistance point.
- E neuromuscular facilitation. (1)

8.10 **Skinfold** measurements ...

- A involve attaching electrodes to the athlete.
- B measure flexibility.
- C provide information on the amount of impedance.
- D usually includes the biceps brachii; triceps brachii; subscapula and suprailiac measurement sites.
- E involve measuring the biceps, quadriceps and trapezius muscles. (1)

[10]

QUESTION 9

Fitness Components

Match the columns by filling in the matching numbers and letters in the 2 columns.

Components of fitness	Definition	Activity
9.1 Flexibility	(i) Ability to use strength over long periods of time.	(a) Press ups
9.2 Aerobic Endurance	(ii) Ability to combine strength with speed in order to perform explosively.	(b) Hamstring stretches
9.3 Muscular Power	(iii) Ability to use muscles through a large range of movement.	(c) Running
9.4 Anaerobic Endurance	(iv) Ability to exercise for long periods of time using oxygen.	(d) Jumping to rebound a basketball
9.5 Muscular Endurance	(v) Ability to exercise at high intensity for short periods of time.	(e) 50 m sprint

Components of fitness	Definition	Activity
9.1 Flexibility		
9.2 Aerobic Endurance		
9.3 Muscular Power		
9.4 Anaerobic Endurance		
9.5 Muscular Endurance		

[10]

QUESTION 10

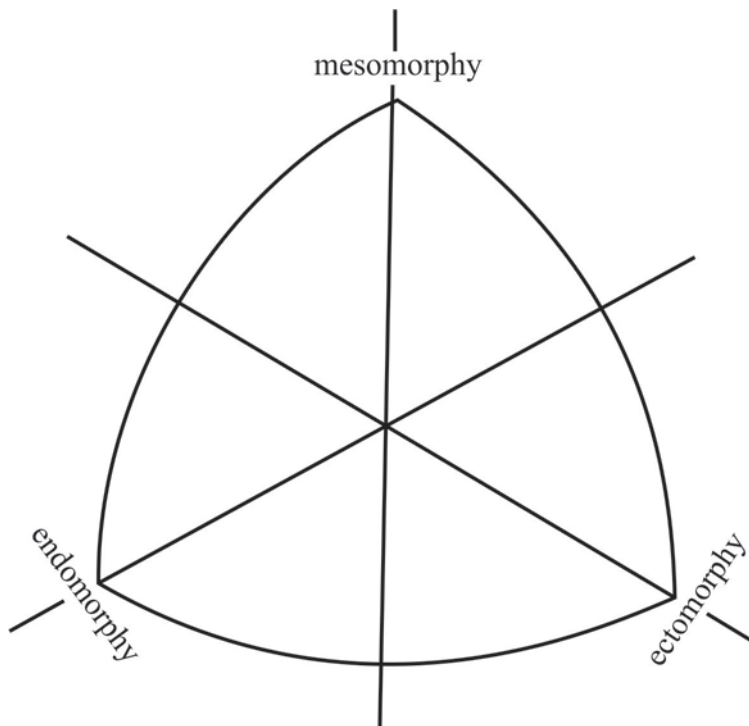
Refer to the somatograph below:

A somatograph can be used to plot somatotypes of athletes. The plotted point represents valuable information which the coach could use to guide participation into sport types according to body size and shape.

Plot the following positions on the somatograph which best describes the body-type of the given athlete.

Use the letters (A – F) to plot the ideal position for each athlete.

- | | |
|------------------------|-------------------|
| A – Weightlifter | B – Gymnast |
| C – Swimmer (sprinter) | D – Sumo wrestler |
| E – Shot putter | F – Rugby prop |



[6]

QUESTION 11

Susan, Thabisile and Candice are performing 10 × 10 m shuttle runs. They all run the first shuttle together and complete the run in 6 seconds. Then:

- Susan is allowed to rest for 10 seconds between each shuttle.
- Thabisile has 60 second rest periods between each shuttle.
- Candice is allowed 120 second rest periods between shuttle runs.

11.1 Using your knowledge of training and recovery, complete the following table by inserting your estimates of each athlete's time.

Athlete	Time 1	Time 3	Time 6	Time 9	Time 10
Susan	6 seconds				
Thabisile	6 seconds				
Candice	6 seconds				

(12)

11.2 Explain why the shuttle run times varied between the three girls.

(5)
[17]

Total: 150 marks