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9727827063

PHYSICAL EDUCATION **0413/12**

Paper 1 Theory **October/November 2024**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Any blank pages are indicated.

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[Turn over

1 Fitness is important for sports performance.

(a) Define fitness.

.....

..... [1]

(b) A coach may carry out fitness tests to identify the strengths and weaknesses of a performer.

Suggest **three** other reasons why a coach may carry out fitness tests.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

[Total: 4]

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2 The arousal level of a performer can affect how well they can perform skills.

(a) Describe what is meant by arousal.

.....

..... [1]

(b) **(i)** Sketch the Yerkes–Dodson law. Label both axes.



.....

[3]

(ii) State the other recognised name for the Yerkes–Dodson law.

..... [1]

(c) Using a named physical activity, explain how each of the following levels of arousal may affect the performance of a named skill.

physical activity .....

skill .....

underarousal .....

.....

.....

optimal arousal .....

.....

.....

overarousal .....

.....

.....

[3]

[Total: 8]

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3 The photograph shows performers in a table tennis match.

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(a) Coordination is needed in table tennis so that the performer can see the ball and hit it with the bat.

(i) Other than coordination, explain how **three** named components of fitness may benefit performance in table tennis.

component of fitness 1 .....

explanation .....

.....

component of fitness 2 .....

explanation .....

.....

component of fitness 3 .....

explanation .....

.....

[6]

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(ii) Describe how to carry out a named fitness test to measure coordination.

name of test .....

description .....

.....

.....

.....

.....

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.....

[4]

(b) Before playing a table tennis match a performer should warm up.

Identify the **three** phases of a warm up.

1 .....

2 .....

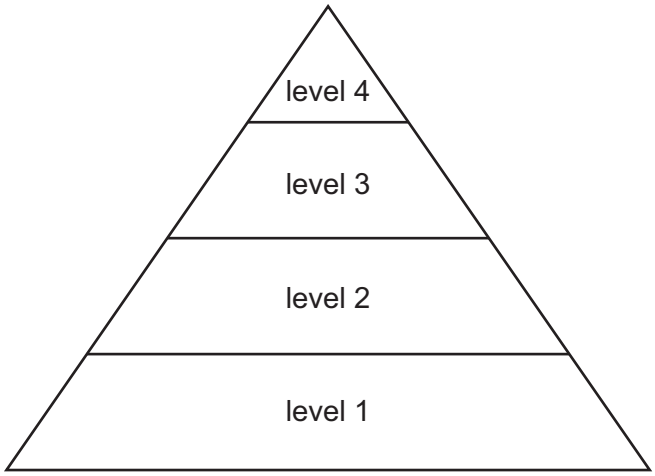
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4 The sports development pyramid has four levels.



(a) Level 4 of this sports development pyramid is the elite level.

Identify the other **three** levels.

level 3 .....

level 2 .....

level 1 .....

[3]

(b) Describe **three** characteristics of the lowest level of the sports development pyramid.

1 .....

.....

2 .....

.....

3 .....

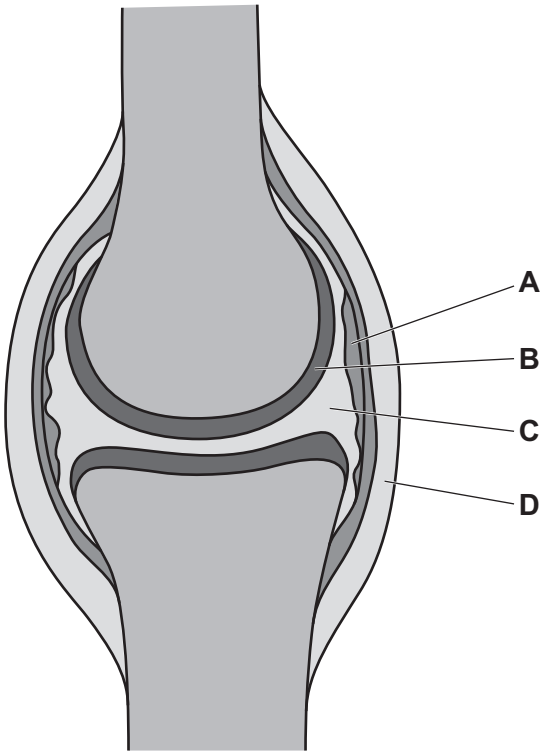
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[Total: 6]

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5 **(a)** The diagram shows a typical synovial joint.



Complete the table to identify the labelled structures in the synovial joint. State a different function for each structure.

label	name of structure	function
A	synovial membrane	
B		
C		lubricates the joint
D	ligament	

[5]

(b) The knee joint is a synovial joint.

Identify **two** types of movement that can occur at the knee joint.

1 .....

2 .....

[2]

(c) Compare the range of movement and stability at the knee joint with the range of movement and stability at the hip joint.

.....

.....

.....

..... [2]

[Total: 9]

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6 The photograph shows performers playing football.



Access to facilities and equipment can affect participation in football.

Explain how **four** other named factors can affect participation in football.

factor 1 .....

explanation .....

.....

factor 2 .....

explanation .....

.....

factor 3 .....

explanation .....

.....

factor 4 .....

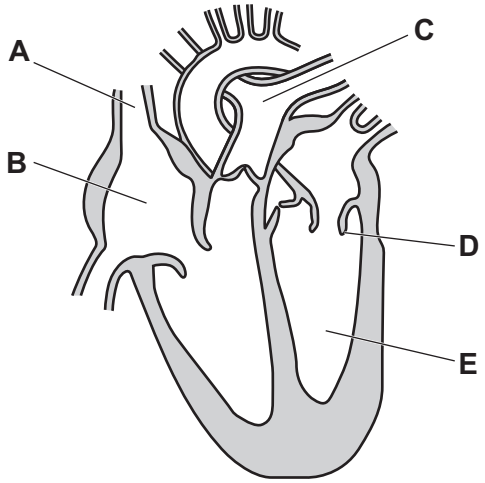
explanation .....

.....

[8]

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7 **(a)** The diagram shows the structure of the heart.



Identify the following structures:

A .....

B .....

C .....

D .....

E. .....

[5]

(b) A performer has a resting heart rate of 60 beats per minute and a cardiac output of 4.2 litres per minute.

(i) Calculate the stroke volume of the performer. Include appropriate units.

..... [2]

(ii) The performer uses regular continuous training.

Describe how this affects the stroke volume of the performer.

.....

..... [1]

[Total: 8]

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8 **(a)** Use examples from a named physical activity to describe how a coach may provide **three** named types of guidance to a performer.

physical activity .....

type of guidance 1 .....

description .....

.....

.....

type of guidance 2 .....

description .....

.....

.....

type of guidance 3 .....

description .....

.....

.....

[6]

(b) Coaches often provide guidance to help performers in the cognitive stage of learning.

Suggest benefits for cognitive performers of receiving guidance.

.....

.....

.....

..... [2]

[Total: 8]

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9 Prohibited performance-enhancing drugs (PEDs) may be used by performers in different physical activities.

(a) Complete the table to identify a different type of prohibited PED that may be used for each physical activity. Justify each of your answers.

physical activity	different type of prohibited PED	justification
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 judo		
Content removed due to copyright restrictions. swimming		
Content removed due to copyright restrictions. golf		

[8]

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(b) Performers are regularly tested to check for the use of prohibited PEDs.

Other than facing public humiliation, describe **three** different disadvantages for a performer of using prohibited PEDs.

1 .....

2 .....

3 .....

[3]

[Total: 11]

10 Describe a different function of each of the following nutrients:

carbohydrates .....

.....

fats .....

.....

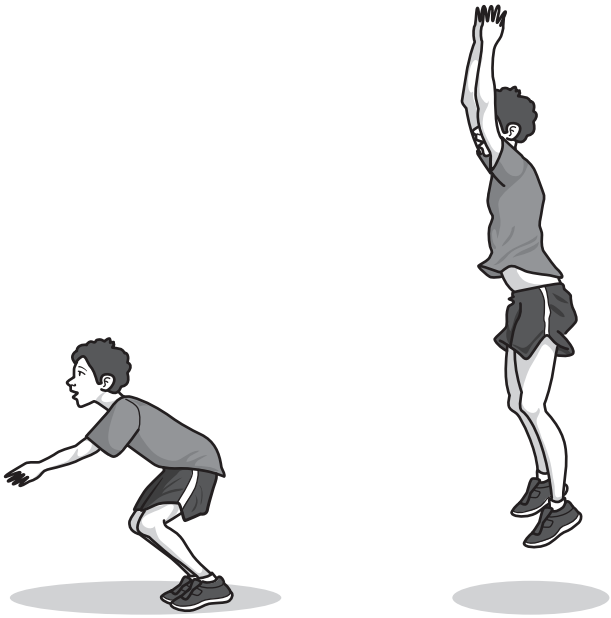
proteins. .....

.....

[3]

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11 The diagram shows part of the performance of a Vertical Jump Test.



A **B**

(a) Identify the component of fitness measured by the Vertical Jump Test.

..... [1]

(b) **(i)** Identify the type of movement at each of the following joints from position **A** to position **B**:

hip joint .....

shoulder joint. .....

[2]

(ii) Identify an agonist and an antagonist at the hip joint during the movement from position **A** to position **B**.

agonist .....

antagonist .....

[2]

(iii) Identify the type of isotonic muscle contraction in the agonist at the hip joint during the movement from position **A** to position **B**. Describe this type of muscle contraction.

type of isotonic muscle contraction .....

description .....

.....

[2]

[Total: 7]

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12 Deep breathing is a relaxation technique that can be used to control arousal levels.

Describe **two** other named relaxation techniques that a performer can use to control arousal levels.

relaxation technique 1 ....

description ....

....

relaxation technique 2 ....

description ....

.... [4]

13 The Olympic Games is an example of a global event.

Explain how a nation may benefit from hosting a global event.

....

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....

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....

....

....

....

....

....

.... [5]

14 Muscles need a good supply of oxygen.

(a) Explain how the following characteristics of the alveoli assist gaseous exchange:

large surface area .....

.....

walls with a thickness of one cell. .....

.....

[2]

(b) Identify **two** named muscles of the respiratory system that contract when breathing in. Describe how each muscle increases the volume of the chest cavity.

muscle 1 .....

description .....

.....

muscle 2 .....

description .....

.....

[4]

[Total: 6]

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