Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

C555U10-1

S24-C555U10-1

WEDNESDAY, 22 MAY 2024 – AFTERNOON

PHYSICAL EDUCATION (Short Course)

Component 1: Introduction to Physical Education

1 hour

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1(a)(i)	1	
1(a)(ii)	2	
1(b)(i)	1	
1(b)(ii)	2	
1(c)(i)	1	
1(c)(ii)	3	
1(d)(i)	1	
1(d)(ii)	2	
2(a)(i)	1	
2(a)(ii)	4	
2(b)	3	
2(c)	7	
3(a)(i)	1	
3(a)(ii)	2	
3(b)(i)	1	
3(b)(ii)	5	
3(b)(iii)	2	
3(c)(i)	2	
3(c)(ii)	4	
3(d)(i)	1	
3(d)(ii)	4	
4(a)	5	
4(b)	3	
4(c)	2	
Total	60	

C555U101
01

ADDITIONAL MATERIALS

You may use a calculator in this examination.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

Diagrams, charts and graphs can be used to support answers when they are appropriate.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

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Answer **all** questions.

1. **Figure 1** – A sprinter driving out of the blocks at the start of a 100 m race

(a) (i) Identify the main component of fitness needed by the sprinter at the start of a 100 m race. [1]

Tick (✓) **one** box only.

A Agility ☐

B Reaction time ☐

C Muscular endurance ☐

D Cardiovascular endurance ☐

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(ii) Justify your reasons for choosing the component in **1**(a)(i) opposite. [2]

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(b) (i) Identify the main type of muscle fibre used by the sprinter during a 100 m race. [1]

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(ii) Justify your reasons for the muscle fibre identified in **1**(b)(i). [2]

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03

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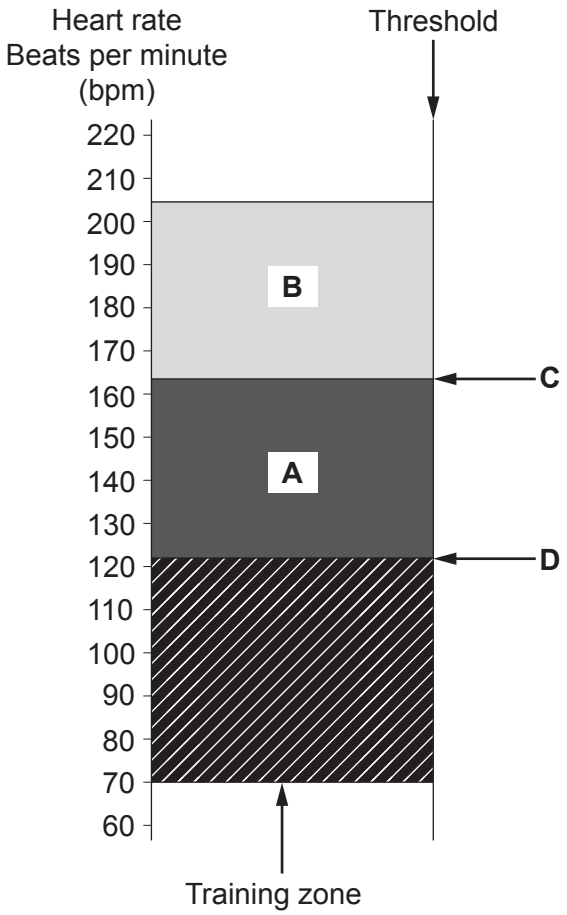
Figure 2 – Training zones graph



(c) (i) Identify, using **Figure 2**, the training zone a 16-year-old sprinter would train in to improve speed. [1]

Tick (✓) **one** box only.

Training zone **A** ☐

Training zone **B** ☐

Examiner only

(ii) Explain why the training zone chosen in **1**(c)(i) is important for the improvement of sprint athletes. [3]

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(d) (i) Name the **main** energy system that would be used by a 100 m sprinter. [1]

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(ii) Explain **two** reasons why this system would be used by a 100 m sprinter. [2]

1. .....

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2. .....

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13

C555U101
05

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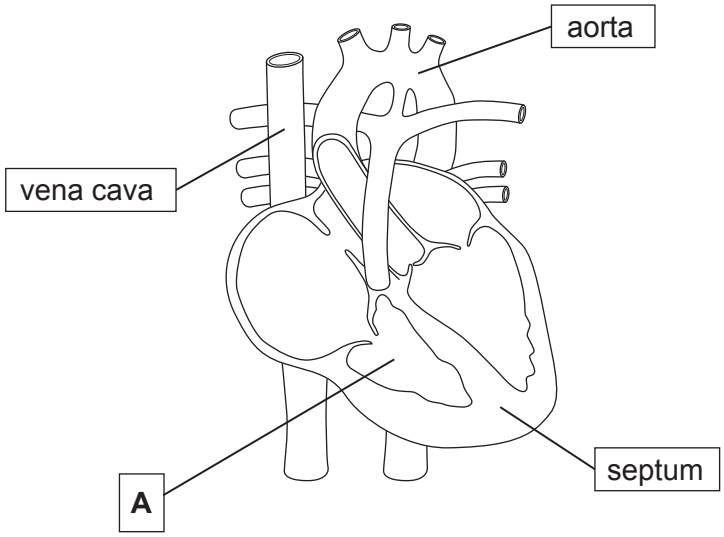
2. **Figure 3** – A diagram of the heart



(a) (i) Identify the part of the heart that is labelled **A**. [1]

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(ii) Define the terms below and identify average resting values for each. [4]

	Definition	**Average resting value**
Heart rate	....	..... bpm
Stroke volume	....	..... ml

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(b) Explain, using a sporting activity of your choice, what happens to the heart rate during exercise and how this benefits performance. [3]

(c) Describe how the long term effects of training on the cardiovascular system will benefit the health and fitness of a sports performer. [7]

Examiner only

3. (a) An important component of fitness for all games players is cardiovascular endurance.

(i) Define the term cardiovascular endurance. [1]

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(ii) Explain, using a games activity of your choice, why cardiovascular endurance is important. [2]

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(b) (i) Identify **one** method of training that could be used to develop cardiovascular endurance. [1]

Tick (✓) **one** box only.

Plyometrics ☐

Weight ☐

Continuous ☐

Flexibility ☐

Examiner only

(ii) Analyse why fartlek training might be used by a games player to improve performance. [5]

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(iii) Explain **one** way in which the principle of overload can be applied to a fartlek training session. [2]

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(c) A healthy, balanced diet is made up of six essential nutrients.

(i) Identify **two** essential nutrients that contribute to a healthy, balanced diet. [2]

1. .....

2. .....

Examiner only

(ii) Evaluate why a marathon runner's diet will differ from that of a weightlifter. [4]

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(d) (i) Describe what is meant by the term 'energy balance equation'. [1]

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(ii) Explain why an imbalance in the energy equation may negatively affect the performance of a sportsperson. [4]

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22

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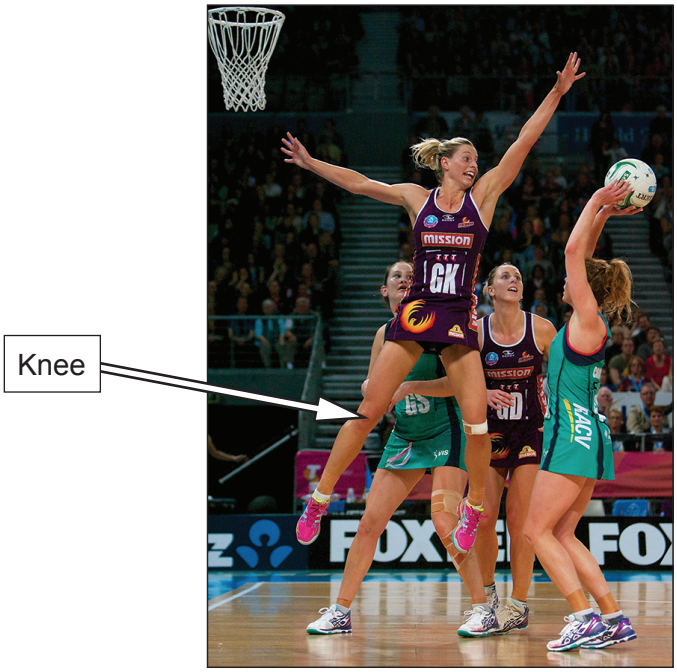
4. **Figure 4** – A netball player jumping



(a) Analyse, using **Figure 4**, the movement at the knee.

Complete the table below.

Tick (✓) **one** box for each of the statements. [5]

	True	False
Movement at the knee is flexion.		
Plane of movement is sagittal.		
Prime mover/agonist muscles causing the movement at the knee are the hamstrings.		
Antagonist muscles in the movement at the knee are the quadriceps.		
The knee is a third order lever.		

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(b) Identify the correct definition for each muscular contraction.

Draw a line to match each muscular contraction to the correct definition. [3]

Muscular Contraction	Definition
Concentric	Muscle stays the same length whilst contracting under tension
Eccentric	Muscle shortens during contraction
Isometric	Muscle lengthens under tension

Figure 5 – The results for the standing vertical jump (test for leg power) before and after a 6 week programme of plyometrics training for netball players

	Week 1	**Week 6**
Player 1	54 cm	59 cm
Player 2	22 cm	31 cm
Player 3	37 cm	39 cm
Player 4	64 cm	67 cm

(c) Analyse the data in **Figure 5** to complete the table. [2]

Write **one** player number only for each statement.

	Player
The player that showed the **most improvement** in their leg power.	
The player that showed the **least improvement** in their leg power.	

10

END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

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