



Oxford Cambridge and RSA

Wednesday 17 May 2023 – Afternoon

GCSE (9–1) Physical Education

J587/01 Physical factors affecting performance

Time allowed: 1 hour

No extra materials are needed.



Please write clearly in black ink. **Do not write in the barcodes.**

Centre number

Candidate number

First name(s) _____

Last name _____

INSTRUCTIONS

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.

INFORMATION

- The total mark for this paper is **60**.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **16** pages.

ADVICE

- Read each question carefully before you start your answer.

2
Section A

1 Name a suitable test for strength.

..... [1]

2 The image below shows a football player kicking a ball.



(a) (i) State the type of movement that has taken place at the left knee.

..... [1]

(ii) Identify the class of lever used at the **knee** when kicking a ball.

..... [1]

3 (a) State the exercise intensity level that should be performed during a **cool down**.

..... [1]

(b) Describe **two** benefits of cooling down after a basketball game.

1

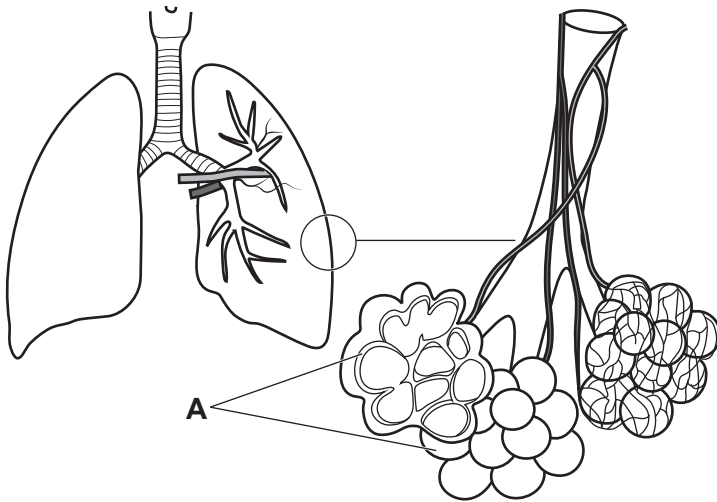
.....

2

.....

[2]

4 This is a diagram of the lungs.



(a) (i) Name the structure labelled **A**.

..... [1]

(ii) Describe the direction of movement of oxygen that takes place at the structure labelled **A**.

.....
..... [1]

(iii) Describe **one feature** of the structure labelled **A**.

Describe **one function** of the feature you have described.

Feature:

Function:

[2]

5 Other than warming up, suggest **two** measures that can help minimise the risk of injury to a volleyball player before they play a game of volleyball.

1

.....

2

.....

[2]

6 (a) (i) Is blood that flows through the vena cava **oxygenated** or **de-oxygenated**?

Put a tick (✓) in the box next to the correct answer.

De-oxygenated

Oxygenated

[1]

(ii) Describe the structure of the vena cava.

..... [1]

7 Which **one** of the following reduces blood flow to non-essential organs during exercise?

Put a tick (✓) in the box next to the correct answer.

A Capillarisation

B Hypertrophy

C Vasoconstriction

D Vasodilation

[1]

8 Define what is meant by a synovial joint.

..... [1]

9 State the by-product of exercise that causes fatigue in working muscles.

..... [1]

10 Using **two** different words from the boxes below, complete the description for a specific movement plane.

The plane runs vertically and divides the body into front and back sections.

A is a practical example of a movement taking place in this plane.

Bicep curl	Forward roll	Frontal
Sagittal	Star jump	Transverse

[2]

11 Name the muscle located at the top of the shoulder.

..... [1]

12 (a) Describe a surface hazard found on an **artificial** cricket pitch.

.....
..... [1]

(b) Describe a **different** surface hazard found on a **grass** cricket pitch.

.....
..... [1]

13 Drowning is a potential **hazard** when swimming.

Is this statement true or false?

..... [1]

14 Describe how regular exercise keeps **bones** healthy.

..... [1]

15 What does 'pliability of ligaments and tendons' mean?

..... [1]

16 Which **one** of the following is the name of the **main** bone protected by shin pads?

Put a tick (✓) in the box next to the correct answer.

A Carpal

B Femur

C Fibula

D Tibia

[1]

17 Name a **sports skill** that only has the same plane of movement as a somersault.

..... [1]

18 Name the **axis of rotation** used when netball players pivot.

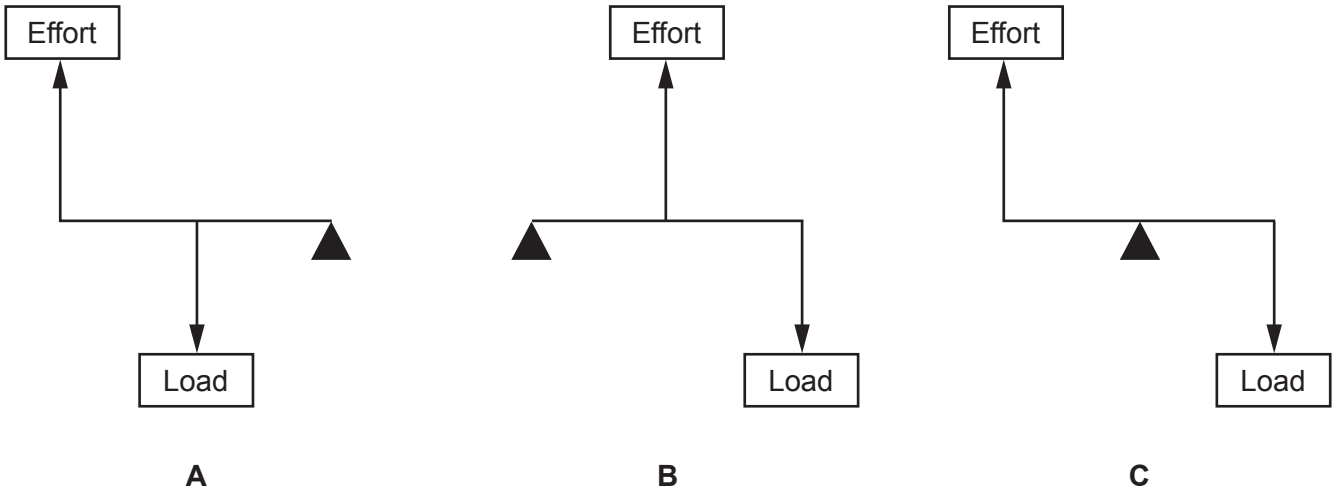
..... [1]

19 Intensity is part of FITT and describes how hard the training is.

Using a **practical example**, describe how a sprinter can **increase** the intensity of their training.

.....
..... [1]

20 The diagram below shows the three different **lever** systems, labelled **A**, **B** and **C**.



Which one of the lever systems is a **third-class** lever?

Put a tick (✓) in the box next to the correct answer.

- A**
- B**
- C**

[1]

Section B

21 (a) Stamina can be measured using the multi-stage fitness test.

The table below shows a set of results, using the multi-stage fitness test, for hockey players before and after pre-season training.

Players	Before pre-season training	After pre-season training	Ratings for Levels
Alex	Level 5	Level 6	Excellent: 13+ Very good: 11–12 Good: 9–10 Average: 7–8 Poor: 5–6 Very poor: <4
Charlie	Level 7	Level 10	
Finley	Level 9	Level 8	
Li	Level 11	Level 15	
Zayn	Level 6	Level 11	

- (i) How many players had an **above** average rating **before** pre-season training?
 [1]
- (ii) Name the player who **improved** their stamina the most during pre-season training.
 [1]
- (iii) Name the player who experienced **reversibility** in stamina during pre-season training.
 [1]
- (iv) Name another suitable test to measure the stamina of hockey players.
 [1]

- (b) Suggest **two** reasons why some hockey players in the table above have made less improvement than others during pre-season training.
 1

 2
 [2]

(c) Describe the two principles of training stated below.

Give a practical example from **swimming** for each principle of training you have described.

Specificity:

.....

Practical example:

.....

Progression:

.....

Practical example:

.....

[4]

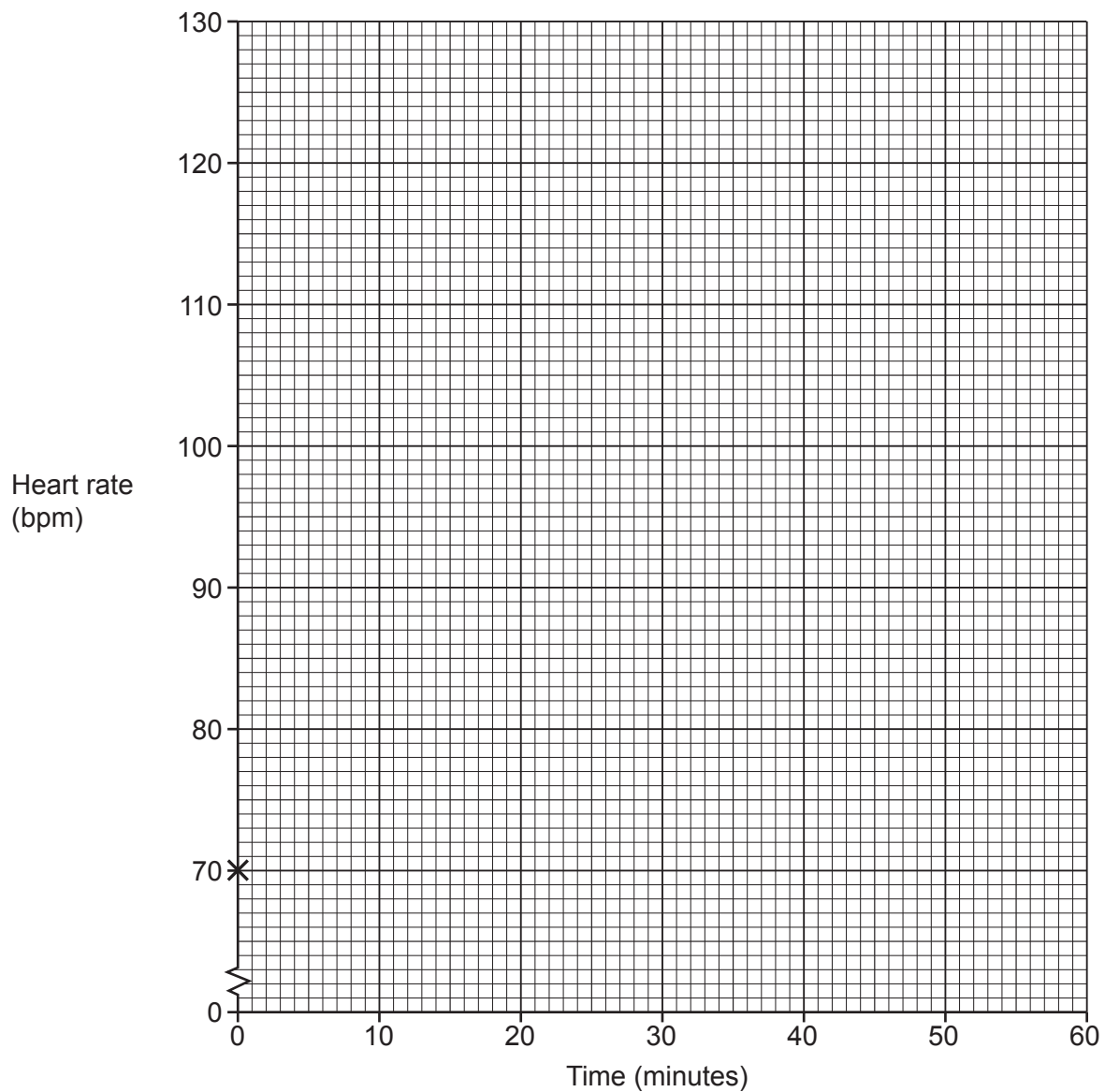
- 22 (a) Sam's heart rate is monitored while they complete a 20-minute training session with a warm up and a cool down.

The following changes are recorded:

- 10 minute warm up – heart rate increases by 15 bpm
- First half of training session – heart rate increases to 110 bpm
- Second half of training session – heart rate remains constant
- Following 15 minute cool down – heart rate drops to 80 bpm.

Plot the **four** changes to Sam's heart rate on the graph below.

Sam's resting heart rate is already shown on the graph as 'X'.



[4]

(b) (i) Other than an increased **heart** rate, describe **three** short-term effects of exercise on Sam's **cardiovascular** system.

1

.....

2

.....

3

.....

[3]

(ii) Other than an increased **breathing** rate, describe **three** short-term effects of exercise on Sam's **respiratory** system.

1

.....

2

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3

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[3]

23 (a) (i) Describe **two** differences between **aerobic** and **anaerobic** exercise.

1

.....

2

.....

[2]

(ii) Using events from track and field athletics, state one **aerobic** event and one **anaerobic** event.

Aerobic event:

Anaerobic event:

[2]

(b)* Exercise can **improve** physical and mental health.

Living a sedentary lifestyle can have **negative** impacts on mental health.

Explain the **long-term** benefits of exercise on the cardiovascular system.

Using practical examples, describe the **emotional** and **social** consequences of a sedentary lifestyle. [6]

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END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

A large area of lined paper for writing. It features a vertical margin line on the left side and horizontal dotted lines for writing. The lines are evenly spaced and extend across the width of the page.

The image shows a grid of small squares, typical of a handwriting practice sheet. There are 20 columns and 26 rows of squares. A solid vertical line runs down the left side, separating the first column from the rest of the grid. The rest of the grid is composed of dotted lines, indicating that the grid is intended to be filled in or used for a specific purpose.



A large area of the page is filled with a grid of dotted lines for handwriting practice. The grid consists of 20 columns and 30 rows. A solid vertical line is positioned at the beginning of the first column, extending from the top dotted line to the bottom dotted line. The rest of the grid is formed by horizontal dotted lines. This layout is typically used to practice letter formation and alignment on a page.

A large area of the page is reserved for writing, featuring a vertical solid line on the left side and horizontal dotted lines extending across the page.



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