



Oxford Cambridge and RSA

Wednesday 22 May 2024 – 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

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Candidate number

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First name(s)

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Last name

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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**
- (a) Describe how the ribs provide protection for the body.
-
- [1]
- (b) Describe, using a sporting example, how the cranium provides protection.
-
- [1]

- 2**
- (a) Describe what is meant by the term hypertrophy of muscle.
-
- [1]
- (b) State **two** types of training used to **increase** hypertrophy of muscle.
- 1
-
- 2
- [2]

- 3**
- (a) The bicuspid and tricuspid valves are in the heart.
- Describe the purpose of these valves.
-
- [1]
- (b) Other than the bicuspid and tricuspid valves, identify another valve in the heart.
- [1]

- 4 Which one of the following is **not** a bone in the arm?

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

- | | |
|------------------|--------------------------|
| A Humerus | <input type="checkbox"/> |
| B Patella | <input type="checkbox"/> |
| C Radius | <input type="checkbox"/> |
| D Ulna | <input type="checkbox"/> |

[1]

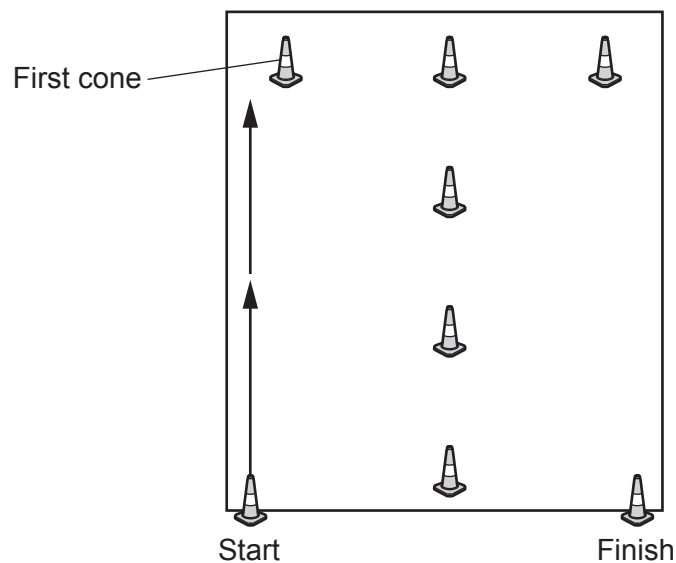
- 5 Overload means doing too much exercise during a training programme.

Is this statement true or false?

..... [1]

- 6 This diagram shows the Illinois agility test set up.

The arrows show the direction from the start to the first cone.



(a)

- (i) Complete the diagram to show the rest of the route of the Illinois agility test.

[1]

- (ii) State the correct distance from the **start** to the **first cone**.

..... [1]

- 7 Arteries and veins are blood vessels that have different structures and functions. For example, arteries do **not** have valves but veins do have valves.

Complete the table below to describe another difference between arteries and veins.

Arteries	Veins
.....
.....

[1]

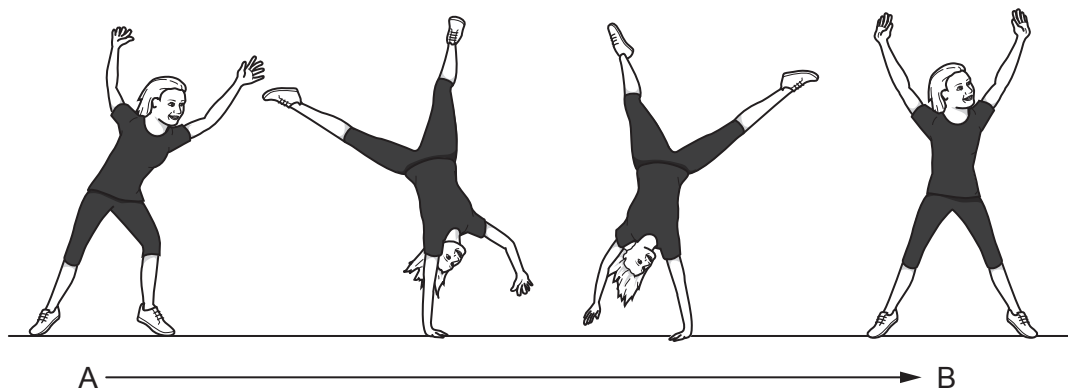
- 8 Complete the statement below using the correct option from the comment box.

The test is a suitable fitness test for co-ordination.

Multi-stage fitness	Ruler drop	Sit-up
Stork stand	Vertical jump	Wall throw

[1]

- 9 The diagram below shows the performance of a cartwheel.



- (a) State the plane of movement that is used when the performer moves from A to B.

..... [1]

- (b) State the type of movement at the shoulder as the arm is raised sideways away from the body.

..... [1]

- 10 Explain, using an example, how the storage of minerals in the skeleton can help a performer during **contact** sports.

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

- 11 State the muscle group involved in rib cage movement during breathing.

..... [1]

- 12 Arteries and veins are types of blood vessel in the body.

Name another type of blood vessel.

..... [1]

- 13 With reference to lever systems, give a definition of mechanical advantage.

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

- 14 Describe **one negative** short-term effect of exercise on the muscular system.

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

- 15 Explain what the term **synovial** joint means.

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

- 16** The table shows pre-test and post-test results for the sit and reach test for four gymnasts.

Name	Pre-test (cm)	Post-test (cm)
Ali	4.5	5.1
Ling	13.5	14.0
Taylor	8.2	8.0
Zayn	15.1	15.5

(a)

- (i)** Which gymnast has the best flexibility?

..... [1]

- (ii)** Which gymnast made the greatest improvement in their flexibility?

..... [1]

- (iii)** Suggest a reason for Taylor's post-test result.

..... [1]

- 17** The cardiovascular system is a double-circulatory system that involves systemic and pulmonary circulation.

Describe the following types of circulation:

Systemic circulation

..... [1]

Pulmonary circulation

..... [1]

- 18** Marathon running is mainly an aerobic exercise.

Describe, using a practical example, when marathon running becomes **anaerobic** exercise.

.....

..... [1]

- 19** A hockey player participates in 60-minute fartlek training sessions twice a week.

Which element of FITT is **not** applied in the statement above?

..... [1]

- 20** Hip and Knee are joint types.

Draw a line that connects each joint type with the correct articulating bones.

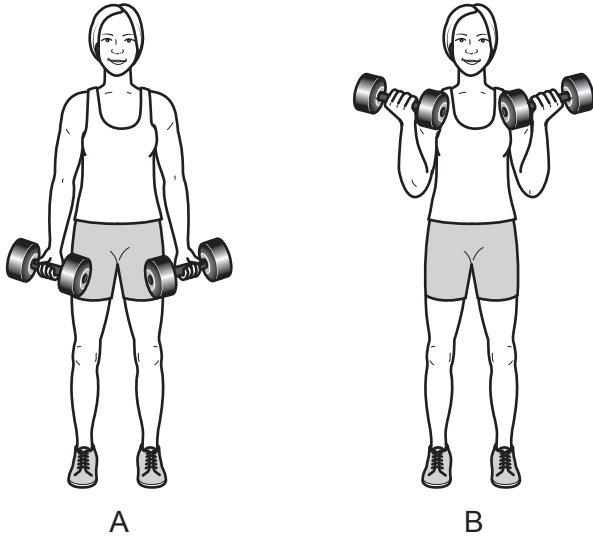
You should draw **one line** for each joint type.

Joint type		Articulating bones
Hip		Femur and fibula
		Femur and pelvis
		Femur and tibia
Knee		Femur and vertebrae
		Femur, fibula and tibia
		Femur, pelvis and vertebrae

[2]

Section B

21 The diagram below shows a gymnast weight training.



(a) Explain how the pair of muscles at the elbow work together when lifting the weights from A to B.

.....

.....

.....

.....

.....

..... [3]

(b) Describe the role of **fixator** muscles during the movement from A to B.

.....

..... [1]

(c) Describe how the ligaments and tendons of a joint help assist the movement from A to B.

Ligaments

.....

Tendons

.....

[2]

(d) Weight training has long term effects which can help a gymnast.

For each example below describe a long term effect **and** explain how this effect could help the gymnast when they are performing.

Example 1:

Bone

Effect on performance

.....

Example 2:

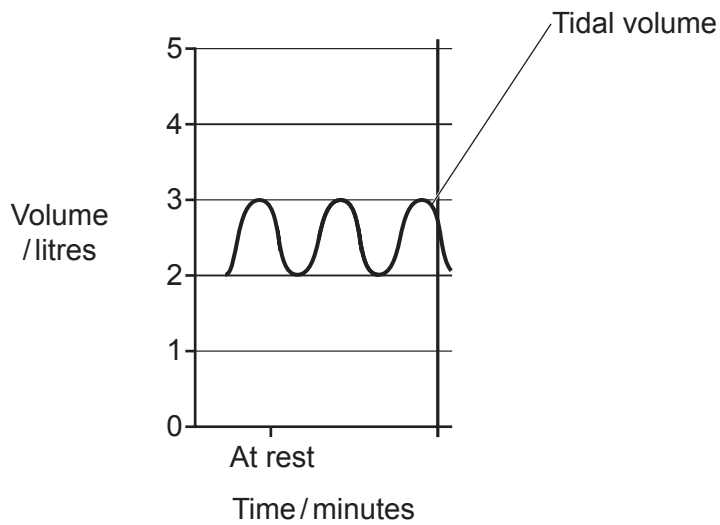
Heart

Effect on performance

.....

[4]

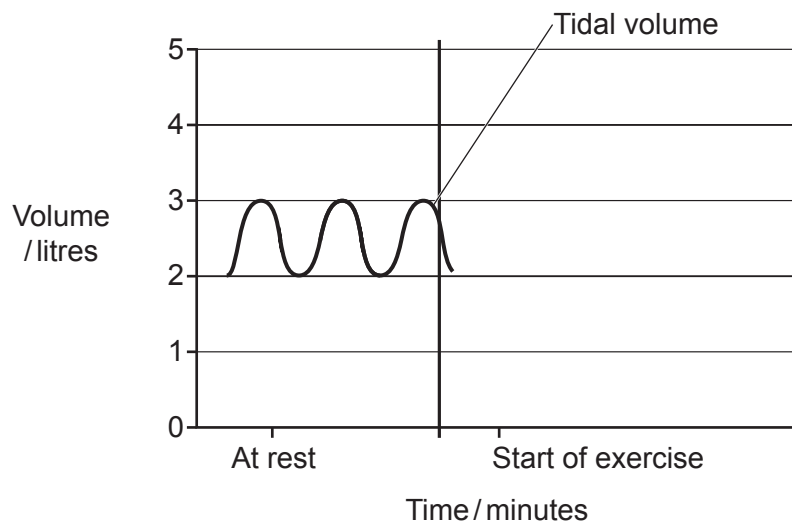
22 The line graph below shows respiratory volume at rest.



(a) State the **tidal** volume at rest.

.....
 [1]

(b) Continue the line graph below to show how tidal volume changes when exercise starts.



[1]

- (c) The left bronchus enters the left lung.

The right bronchus enters the right lung.

Name **two** other features of the lungs and describe a function for each of the features you name.

Feature 1

Function

.....

Feature 2

Function

.....

[4]

- (d) A basketball match is about to start.
Player A has performed a full warm up.
Player B has not performed any warm up.

At the start of the match compare the short-term effects of a full warm up on the **respiratory** system of player A when compared to player B.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

23 A netball player performs passing and catching drills as part of their warm up routine.

(a) Name the warm up component that involves passing and catching drills in netball.

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

(b) Other than the component named in **23(a)**, identify a warm up component and describe **two** benefits for a netball player performing this component.

Named warm up component:

Benefit 1

.....

Benefit 2

.....

[3]

(c)* A sports coach uses different types of guidance during a session.

A coach must also encourage players to perform a cool down to help the body transition to a resting state.

Describe, using examples, the key components of a cool down **and** outline other physical benefits of a cool down.

Explain how using different types of guidance can improve safety when coaching in sport. **[6]**

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END OF QUESTION PAPER

This image shows a blank sheet of white paper designed for writing. It features a series of evenly spaced horizontal blue lines across its entire width. A single vertical blue line runs down the left side, creating a narrow margin. The paper is otherwise completely empty, with no text or markings.

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