

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

Wednesday 13 May 2020 – Afternoon

GCSE (9–1) Physical Education

J587/01 Physical factors affecting performance

**Time allowed: 1 hour
plus your additional time allowance**

No extra materials are needed.

Please write clearly in black ink.

Centre number

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Candidate number

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First name(s) _____

Last name _____

READ INSTRUCTIONS OVERLEAF



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 (*).

ADVICE

Read each question carefully before you start your answer.

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SECTION A

Answer **ALL** the questions.

- 1 FIG. 1 shows a footballer after they have kicked a ball.

FIG. 1



Name **ONE** agonist and **ONE** antagonistic muscle acting at the knee when performing the action in FIG. 1.

(a) Agonist: _____ [1]

(b) Antagonist: _____ [1]

2 Mobility is one component of a warm up that helps to increase the range of movement around a joint.

(a) Give an example of a warm up exercise a tennis player may perform to increase the range of movement in the shoulder.

_____ **[1]**

(b) Give an example of a different type of warm up exercise a tennis player may perform to increase the range of movement in the hip.

_____ **[1]**

(c) A tennis player will practise serves, volleys and other ground strokes before starting a game.

State the general term for this component of a warm up.

_____ **[1]**

- 3 Muscular hypertrophy is a disease in which a performer loses strength.**

Is this statement true or false? Draw a circle around your answer. [1]

TRUE

FALSE

- 4 Which ONE of the following states the correct names for the two bones in the lower leg?**

Put a tick (✓) in the box next to the correct answer. [1]

- | | |
|----------------------------|--------------------------|
| A Tibia and Fibia | <input type="checkbox"/> |
| B Tibula and Fibia | <input type="checkbox"/> |
| C Tibia and Fibula | <input type="checkbox"/> |
| D Tibula and Fibula | <input type="checkbox"/> |

- 5 Describe how the septum affects blood flow through the heart.**

_____ **[1]**

- 6 Other than the ribs, name a bone that protects the heart and lungs when controlling the ball with your chest in football.**

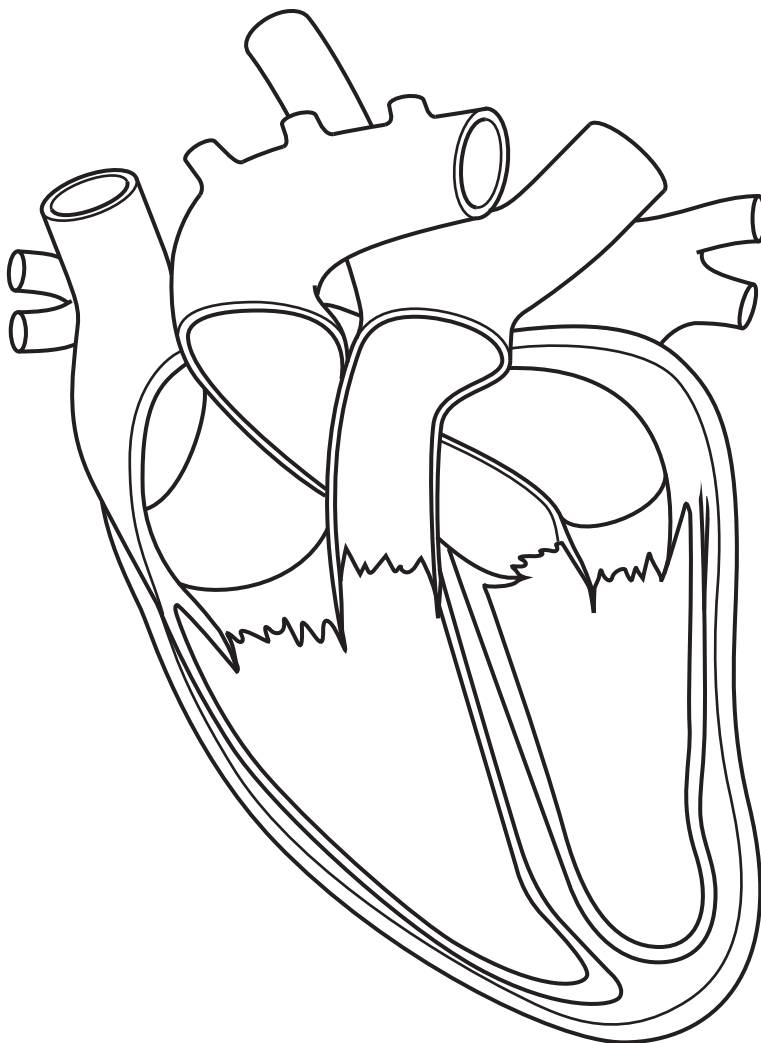
_____ **[1]**

7 Describe the function of the intercostal muscles during inspiration.

[1]

8 FIG. 2 shows a diagram of the heart.

FIG. 2



(a) Using FIG. 2, draw an X to indicate the location of ONE of the semilunar valves. [1]

Valves help prevent the backflow of blood.

(b) The semilunar valves prevent blood flowing back into which part of the heart?

_____ **[1]**

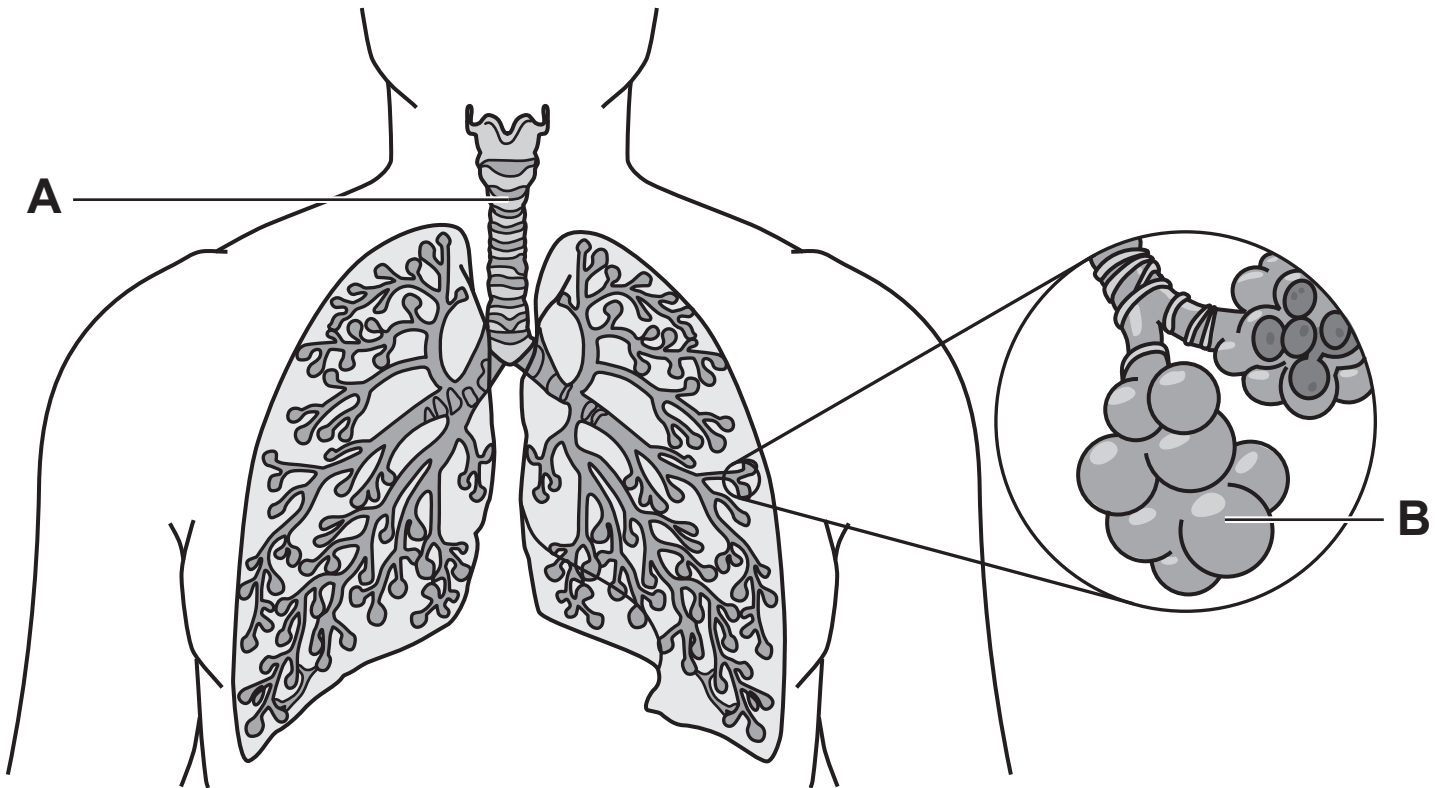
9 Which ONE of the following statements is TRUE?

Put a tick (✓) in the box next to the correct answer. [1]

- A A hazard in a swimming pool is a swimmer banging their head and suffering concussion** ☐
- B Reversibility is when a performer completes a circuit training session backwards** ☐
- C Heading the ball in football is an example of a third-class lever** ☐
- D When bowling in cricket the humerus is an articulating bone at the shoulder and elbow** ☐

10 FIG. 3 shows some of the structures of the respiratory system.

FIG. 3



Name the structures labelled A and B.

A = _____

B = _____

[2]

11 Name the plane of movement at the elbow during a biceps curl.

_____ **[1]**

12 (a) Give ONE example of personal protective equipment used to reduce the risk of injury in physical activity and sport.

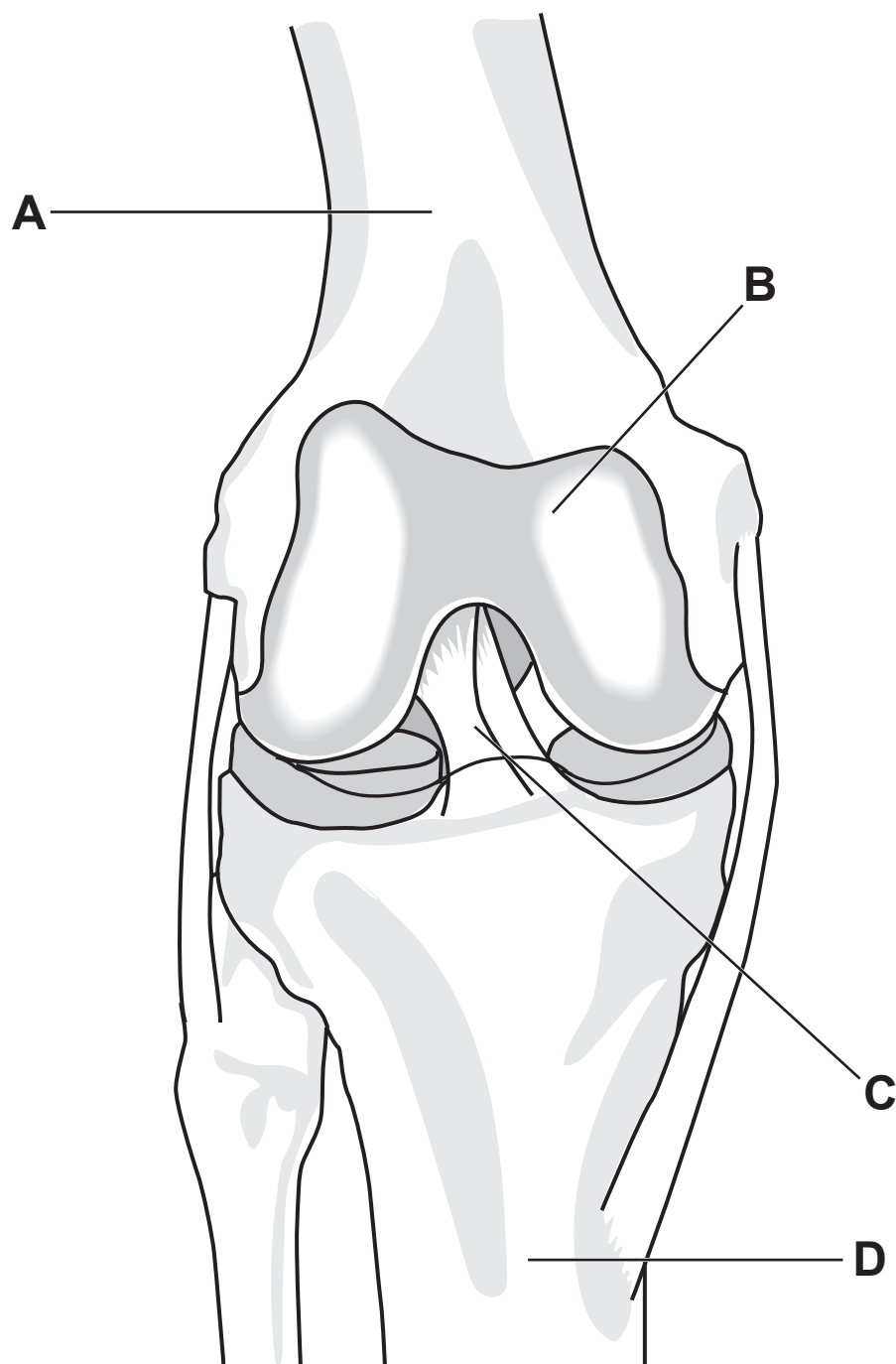
_____ [1]

(b) Describe how the piece of equipment named in (a) may reduce the risk of injury.

_____ [1]

13 FIG. 4 below shows a diagram of a knee joint.

FIG. 4



(a) Which letter identifies the location of cartilage on the femur?

_____ [1]

(b) Describe the role of this cartilage for a long jumper.

_____ [1]

14 TABLE 1 shows the results for the wall throw test and the ruler test for four participants.

TABLE 1

Performer	Wall throw test	Ruler test (cm)
Rehan	18	5
Gordon	33	12
Ella	9	22
Aisha	36	4

Use TABLE 1 to answer the following:

(a) Which participant has the slowest reaction time?

_____ [1]

(b) Which participant has the best co-ordination?

_____ [1]

15 Describe a cardiovascular benefit of performing a cool down.

[1]

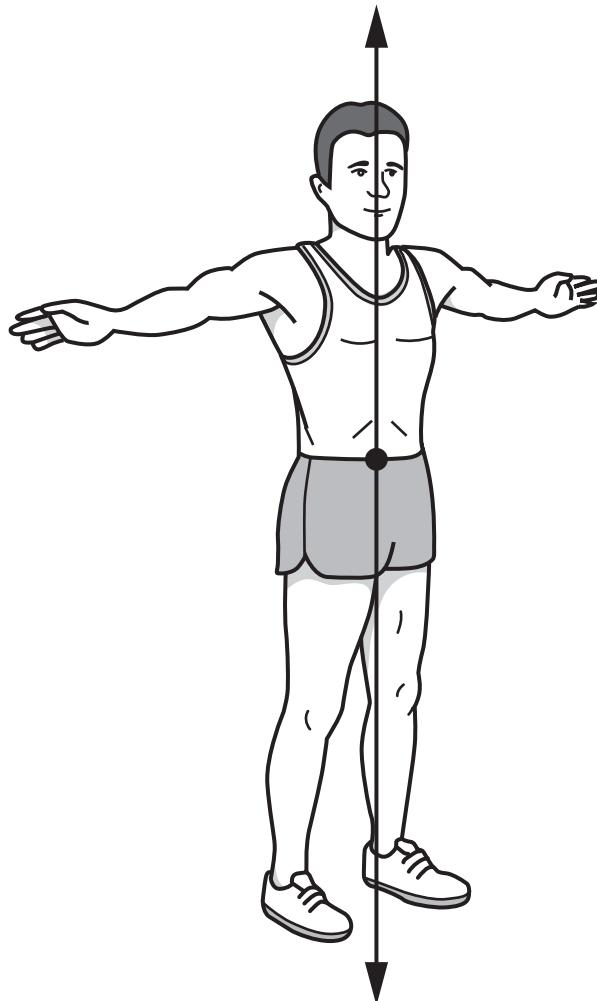
16 HIIT is a type of training.

What does HIIT stand for?

[1]

- 17 FIG. 5 shows a line through the centre of the body that represents an axis of rotation.

FIG. 5



- (a) Which axis of rotation does Fig. 5 show?

_____ [1]

- (b) Give a practical example of a movement in sport or physical activity that uses this axis of rotation.

_____ [1]

18 (a) Identify the fitness component that is measured by the press-up test.

_____ [1]

(b) Use a practical example to show the importance of balance in physical activity or sport.

_____ [1]

19 Agility is the range of movement around a joint when sidestepping in rugby.

Is this statement true or false? Draw a circle around your answer. [1]

TRUE

FALSE

20 Define cardiac output.

_____ [1]

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SECTION B

Answer ALL the questions.

21 (a) Other than equipment, identify FOUR potential hazards in a fitness centre.

1. _____

2. _____

3. _____

4. _____

[4]

*(b) Using practical examples, discuss the importance of strength in team and individual sports.

Describe a suitable test to measure strength.

Describe different types of feedback that can be used to improve performance during a strength test. [6]

[illegible]

[illegible]

- 22 **TABLE 2** shows the distribution of blood (%) at rest and during a cross country race.

TABLE 2

	Distribution of blood (%)	
Part of the body	Rest	Cross country race
Liver	25	1.5
Heart	5	5
Kidneys	20	1
Muscle	20	80
Skin	10	5
Other	20	7.5

Use **TABLE 2** to answer the following questions:

- (a) (i) Identify the part of the body that receives the most blood during exercise.

_____ [1]

- (ii) Identify the part of the body that receives the most blood at rest.

_____ [1]

(b) Explain the effects of the redistribution of blood during exercise.

[3]

(c) One function of the skeleton is the production of red blood cells.

(i) Describe the role of red blood cells during a cross-country race.

[2]

(ii) State THREE other functions of the skeleton during a cross-country race.

1.

2.

3.

[3]

23 (a) (i) Using practical examples, compare the differences between first and second class levers.

[4]

(ii) Explain how lever systems may have mechanical advantage.

[2]

(b) Define the following terms:

(i) Tidal volume:

_____ [1]

(ii) Minute ventilation:

_____ [1]

(c) Explain the effects of exercise on tidal volume and minute ventilation.

_____ [2]

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).

[illegible]

[illegible]

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