OCR
Oxford Cambridge and RSA

# Monday 15 November 2021 – 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.

## Section A

Answer **all** the questions.

**1** Define heart rate.

.....

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

**2** **Fig. 2** shows the performance of a gymnastic skill.

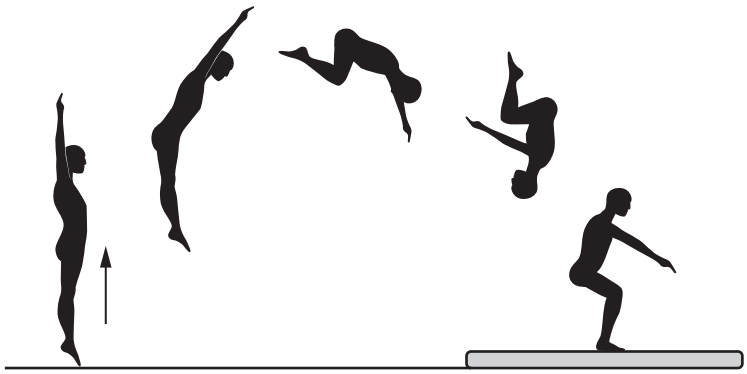

**Fig. 2**

**(a)** Name the axis of rotation in **Fig. 2**.

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

**(b)** If the gymnast completes the same gymnastic move backwards, the axis of rotation remains the same.

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

**True** **False**

**[1]**

**3** Describe the role of the trachea in the respiratory system.

.....

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

**4** **(a)** Define reaction time.

.....

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

**(b)** Name a suitable test for reaction time.

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

**(c)** Describe, using a sporting example, how a fast reaction time may benefit performance.

.....

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

**5** **Fig. 5** shows a fitness exercise.

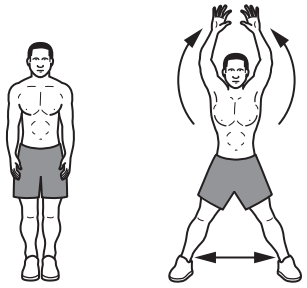


**Fig. 5**

Name the plane of movement for the exercise shown in **Fig. 5**.

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

**6** Stroke volume is:

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

**A** The amount of air leaving the lungs in one breath ☐

**B** The amount of air leaving the lungs in one minute ☐

**C** The amount of blood leaving the heart in one beat ☐

**D** The amount of blood leaving the left ventricle in one minute ☐

**[1]**

**7** A football player suffers a fracture in the lower leg, above the ankle.

**(a)** Name **one** bone in the lower leg that may have been fractured.

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

**(b)** Explain the effect of reversibility on the football player during recovery from the fracture.

.....

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

**8** Describe how the sit and reach test is performed to measure flexibility.

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.....

..... **[2]**

**9** Team sports involve aerobic and anaerobic exercise.

**(a)** Using a team sport of your choice, describe a sporting example for each.

Team sport: .....

Aerobic exercise: .....

.....

Anaerobic exercise: .....

..... **[2]**

**(b)** During a training session a games player runs at different speeds and over different gradients.

Name this type of training.

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

**10** **Fig. 10** shows an image of a dancer performing a pirouette that involves spinning around on one foot.

**Fig. 10**

A pirouette is a movement around the longitudinal axis.

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

**True** **False**

**[1]**

**11** Explain the main purpose of a badminton player jogging around the court as part of their warm up.

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

**12** **Fig. 12** shows the legs and feet of a high diver preparing to dive into the water.

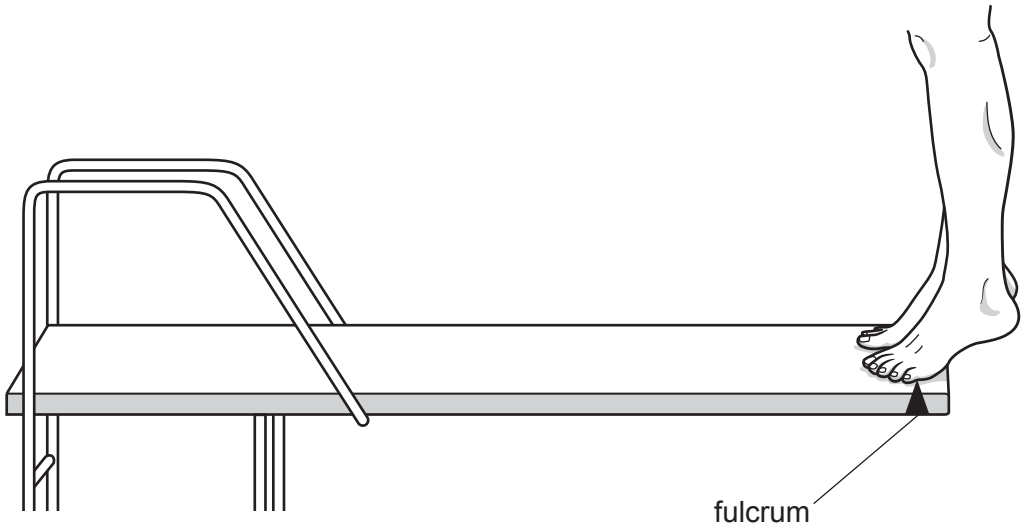


**Fig. 12**

Draw an arrow on **Fig. 12** to show each of the following:

- the direction of the load.
- the direction of the effort

**[2]**

**13** Describe the role of a fixator muscle.

.....

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

**14** Name the fitness component that a hand grip dynamometer tests.

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

**15** Which one of the following correctly names the articulating bones in the elbow joint?

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

**A** Humerus, biceps, radius ☐

**B** Humerus, radius, ulna ☐

**C** Humerus, scapula, ulna ☐

**D** Radius, carpals, ulna ☐

**[1]**

**16** Describe how to lift heavy sporting equipment safely.

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.....

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..... **[2]**

**17** One function of the skeleton is to allow movement so that rugby players can tackle and run with the ball.

Describe how the structure of the skeleton allows movement.

.....

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

**18** Name the blood vessel that transports blood from the left ventricle towards the muscles.

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

**19** One of the long-term benefits of regular exercise is an increase in aerobic capacity.

**(a)** What is meant by aerobic capacity?

.....

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

**(b)** Explain how a high aerobic capacity gives a cyclist a better chance of winning a race.

.....

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

**20** Name the part of the body that the vertebrae protect.

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

## Section B

Answer **all** the questions.

**21 (a)** Basketball and netball players put a lot of stress on their knees during a match.

Describe, using practical examples from basketball or netball, the role of ligaments, tendons and cartilage at the knee.

Ligaments: .....

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.....

Tendons: .....

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Cartilage: .....

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**[6]**

**(b)** Explain the redistribution of blood flow in a basketball or netball player during a match.

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..... **[4]**

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**22 (a)** **Table 22** shows respiratory rates for hockey players in different playing positions before and during a game.

| Stages of the match | Respiratory rate (breaths per minute) Defender | Respiratory rate (breaths per minute) Midfielder | Respiratory rate (breaths per minute) Forward |
|---|---|---|---|
| **At rest** | 12 | 10 | 13 |
| **After warm up** | 15 | 13 | 16 |
| **End of first half** | 26 | 28 | 30 |
| **Start of second half** | 12 | 10 | 15 |
| **End of second half** | 30 | 16 | 31 |

**Table 22**

**(i)** Analyse the impact of the warm up on the three playing positions.

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

**(ii)** Which playing position had the largest increase in respiratory rate at the end of the first half?

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

**(iii)** Explain why every player's respiratory rate was lower at the start of the second half of the game compared to the end of the first half.

.....

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

**(iv)** Give **one** reason why the respiratory rate of the midfielder was lower at the end of the second half than at the end of the first half.

.....

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

**(b)** Describe **four** long-term benefits that hockey training can have on the respiratory system.

1 .....

.....

2 .....

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3 .....

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4 .....

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**[4]**

**(c)** Describe the effect lactic acid may have on the performance of the hockey players during the game.

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..... **[2]**

**23 (a)** A warm up is one way the risk of injury can be minimised before a rugby game.

State **two** other ways a rugby coach can minimise the risk of injury in their players. Give a practical example from rugby for each method.

Way to minimise risk 1: .....

.....

Rugby example 1: .....

.....

Way to minimise risk 2: .....

.....

Rugby example 2: .....

.....

**[4]**

**(b)*** A rugby player may use mental preparation techniques as part of their warm up.

Using practical examples, explain the benefits of mental preparation techniques before and during a rugby match.

After the match the coach makes the team do a cool down to speed up the removal of lactic acid from muscles.

Explain other physical benefits of a cool down. **[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).