Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2022

Physical Education

Paper 1

Factors Underpinning Health and Performance

[G9771]

G9771

FRIDAY 20 MAY, AFTERNOON

TIME

1 hour 15 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page or on blank pages.
Complete in black ink only. **Do not write with a gel pen.**
Answer **all** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded for each question or part question.
Quality of written communication will be assessed in questions **8** and **17**.

13132

28G977101

1 **Fig. 1** shows the different parts of the respiratory system.

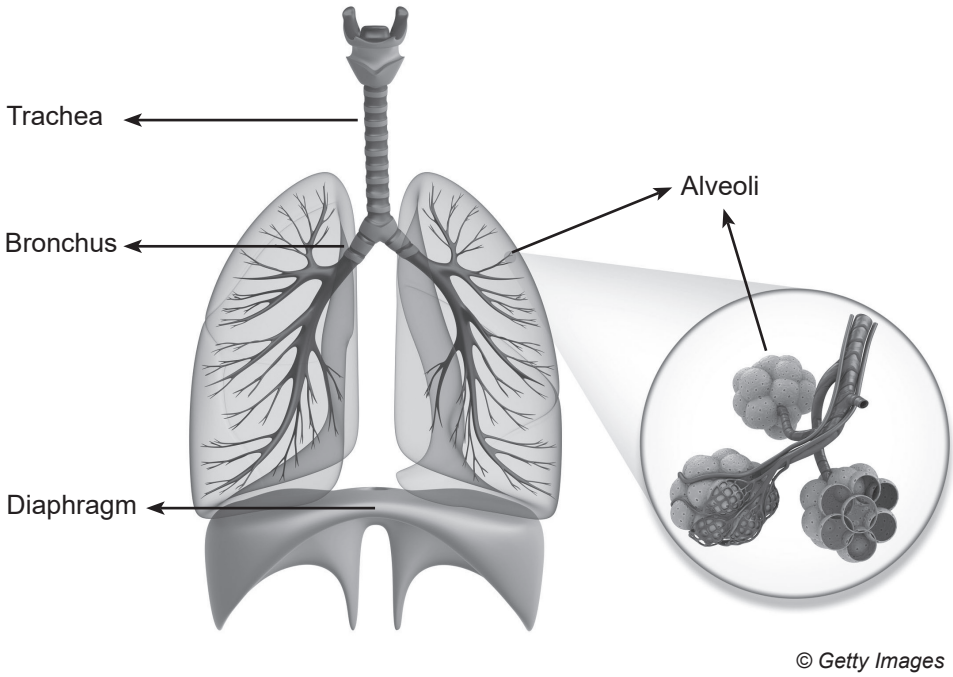


Fig. 1

State the **function** of the parts of the respiratory system identified in **Fig. 1**.

Trachea _____

_____ [1]

Bronchus _____

_____ [1]

Alveoli _____

_____ [1]

Diaphragm _____

_____ [1]

2 Study **Fig. 2** and **Fig. 3** which show the respiratory process, and complete the statements below.

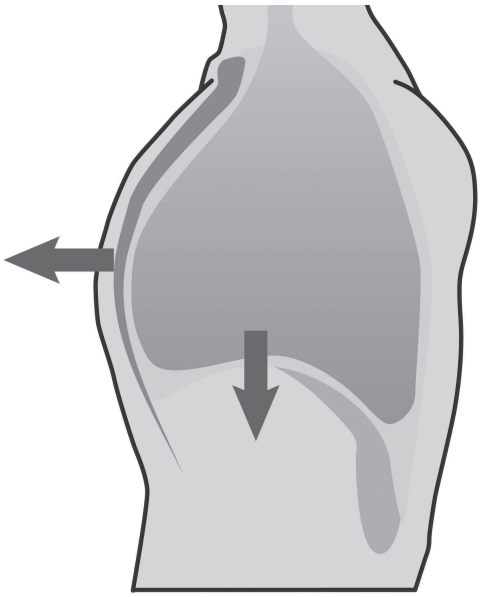


Fig. 2

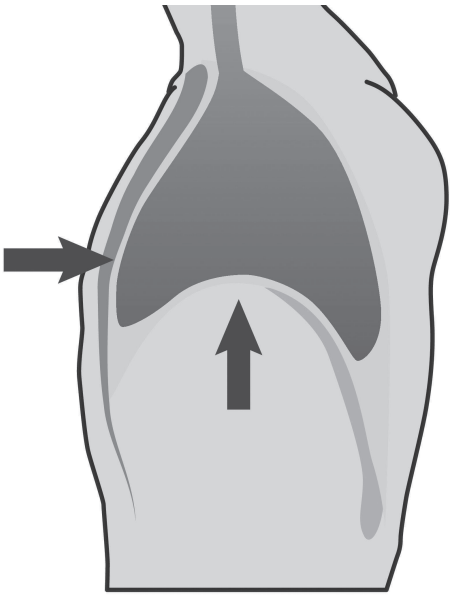


Fig. 3

Adapted from © Getty images

Fig. 2 shows the respiratory process of _____ [1]

Fig. 3 shows the respiratory process of _____ [1]

3 Study **Table 1** which shows the vital capacity of two athletes.

Table 1

	Vital Capacity
Athlete A	5 litres
Athlete B	7 litres

(a) Define the term **vital capacity**.

_____

_____ [1]

(b) **(i)** Identify which athlete should be able to **run the longest distance**.

Athlete _____ [1]

(ii) Explain your choice.

_____

_____

_____

_____

_____

_____ [3]

4 Study **Table 2** which shows two calculations of a person's minute ventilation, at rest and when exercising.

Table 2

Calculation	Minute Ventilation
A	120 litres/minute
B	28 litres/minute

(a) Define the term **minute ventilation**.

_____

_____ [1]

(b) **(i)** Identify which calculation, **A** or **B** shown in **Table 2**, is the person's minute ventilation whilst exercising.

Calculation _____ [1]

(ii) Explain your choice.

_____

_____

_____

_____

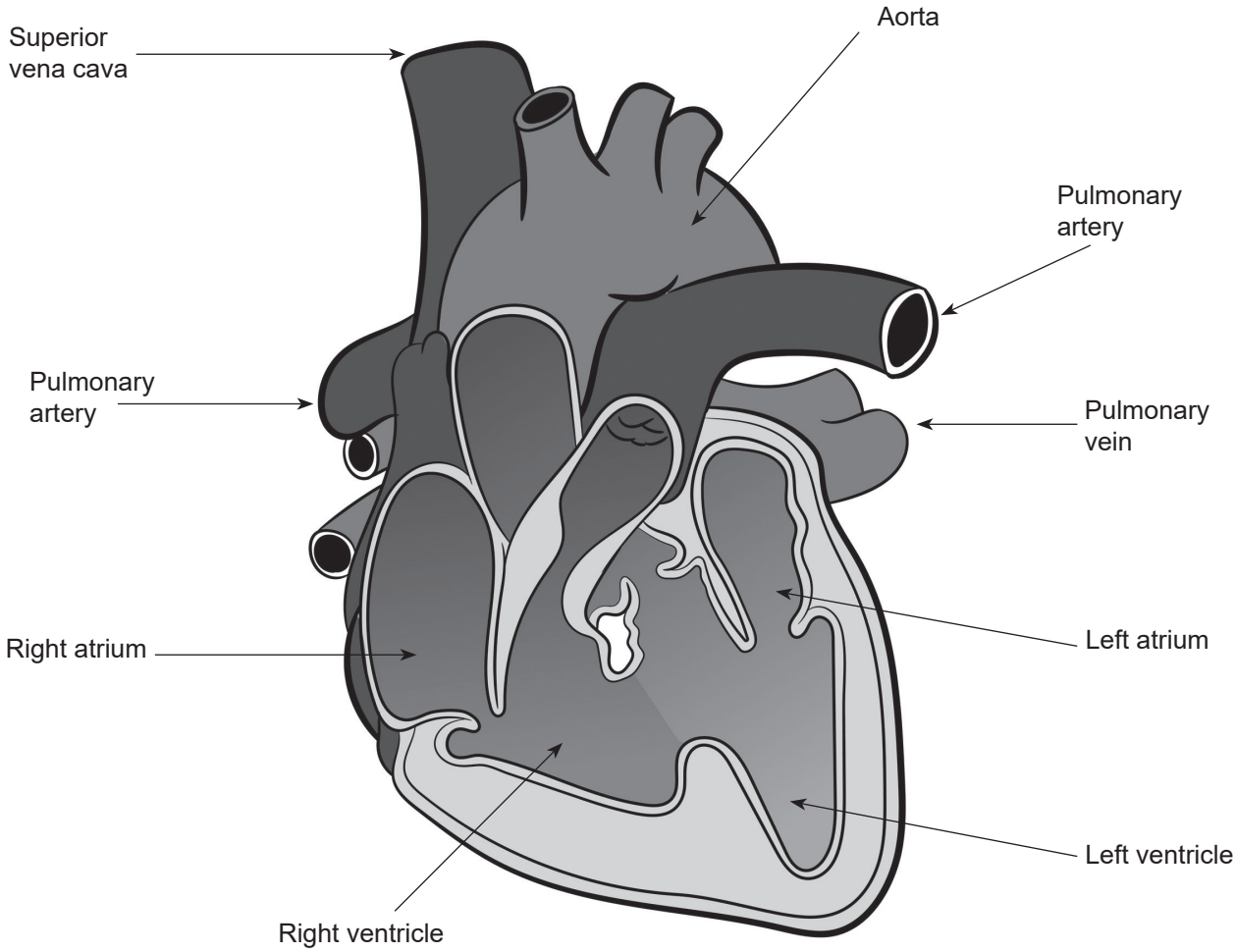
_____

_____ [3]

[Turn over

5 Blood is pumped from the heart around the body in a double circulatory system, known as the pulmonary and systemic circuit.

Study **Fig. 4**, a diagram of a labelled heart, and answer the question that follows.



© Getty Images

Fig. 4

Complete **Table 3** to describe the **flow of blood** through the cardiovascular system during physical activity.

Table 3

Pulmonary circuit, deoxygenated blood from working muscles
↓
↓
↓
↓
↓
Lungs
↓
↓
↓
↓
↓
Systemic circuit, oxygenated blood to working muscles

[8]

[Turn over

6 The Peripheral Nervous System can be divided into two parts, the **somatic** and **autonomic** nervous systems.

State the **part** of the Peripheral Nervous System that controls each of the actions and **justify** your choice.

1. **Catching a ball** _____ nervous system.

   Justification _____

   _____ [2]

2. **Eye dilation** _____ nervous system.

   Justification _____

   _____ [2]

BLANK PAGE

DO NOT WRITE ON THIS PAGE

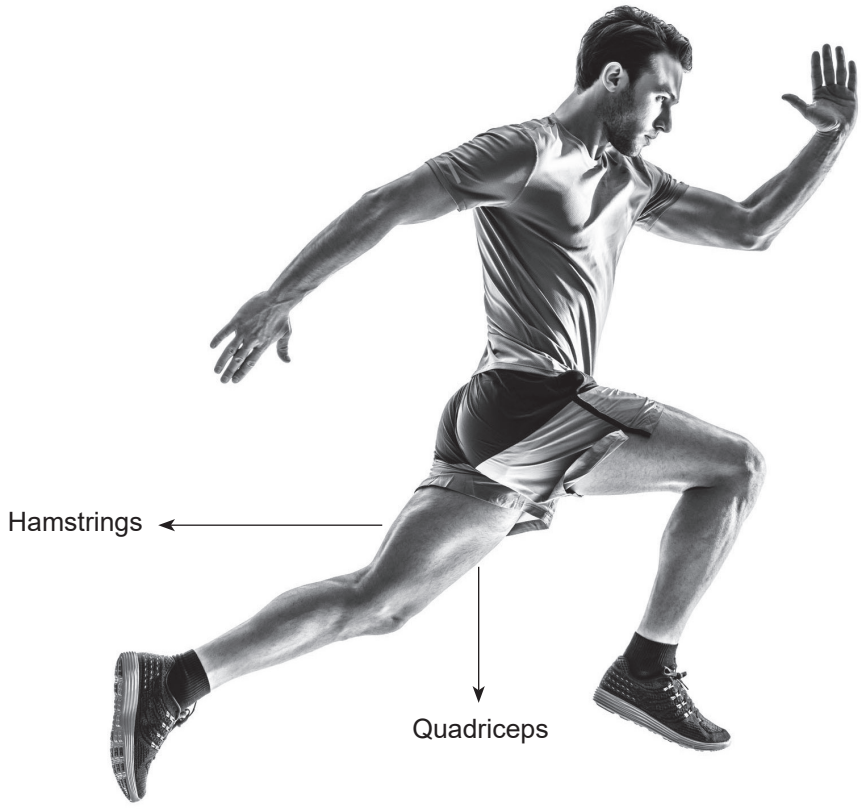
(Questions continue overleaf)

7 **(a)** State the main function of **skeletal muscle** when a person takes part in physical activity.

_____

_____ [1]

(b) Study **Fig. 5** which demonstrates the **quadriceps** and **hamstrings** working as an antagonistic pair of muscles producing isotonic contraction.



© Getty Images

Fig. 5

(i) State which muscle group contracts to **flex** the knee.

_____ [1]

(ii) State which muscle group contracts to **extend** the knee.

_____ [1]

(c) When a person runs continuously for 30 minutes, the muscular system experiences immediate effects.

State **three short-term** effects of exercise on the **muscular system**.

1. _____

_____ [1]

2. _____

_____ [1]

3. _____

_____ [1]

[Turn over

8 A person attends a strength training class, three times a week for a year. Explain **three** expected effects of this optimal training on the **skeletal system**.

Quality of written communication will be assessed in your answer.

[6]

9 A person's leisure activities can be categorised as **active** or **passive**.

Study **Fig. 6** and **Fig. 7** below and then answer the questions that follow.

© Getty Images

Yoga

Fig. 6

© Getty Images

Gaming

Fig. 7

(a) Identify the **type** of leisure activity shown in **Fig. 6** and **Fig. 7**.

1. **Fig. 6** is _____ leisure activity. [1]

2. **Fig. 7** is _____ leisure activity. [1]

(b) Explain the difference in the **type** of leisure activities shown in **Fig. 6** and **Fig. 7**.

_____

_____

_____

_____ [2]

[Turn over

10 Complete **Table 4** by matching the **active leisure industry category** to the appropriate facility.

Active leisure industry categories:

- **Home-based leisure**
- **Catering**
- **Hospitality**
- **Sports and physical recreation**
- **Arts and entertainment**

Table 4

Example of active leisure facility	**Active leisure industry category**
Hotel	
Restaurants	
Library	
Theatre	
Leisure centre	

[5]

11 For a person to be completely healthy they must maintain three key aspects of well-being – **physical**, **social** and **mental**.

Complete the three paragraphs below.

1. **Physical** well-being can be **developed by** _____

_____ .

A benefit of maintaining physical well-being _____

_____ .

A negative consequence of neglecting physical well-being _____

_____ . [3]

2. **Social** well-being can be **developed by** _____

_____ .

A benefit of maintaining social well-being _____

_____ .

A negative consequence of neglecting social well-being _____

_____ . [3]

3. **Mental** well-being can be **developed by** _____

_____ .

A benefit of maintaining mental well-being _____

_____ .

A negative consequence of neglecting mental well-being _____

_____ . [3]

12 **(a)** State the recommended **number of hours** of quality **sleep** a **16-year-old** should get each night.

_____ [1]

(b) State **two recommendations** the 16-year-old should follow to help get the advised hours of **quality sleep**.

1. _____

_____ [1]

2. _____

_____ [1]

13 Alcoholism describes a strong, often uncontrollable desire to drink alcohol.

State **three** reasons why some people are more likely to become addicted to alcohol.

1. _____

_____ [1]

2. _____

_____ [1]

3. _____

_____ [1]

14 State how performance in physical activity or sport could be **hindered** if a person were to take a **hallucinogenic** drug.

_____

_____ [1]

15 The main and most dangerous components of tobacco smoke are **nicotine**, **tar** and **carbon monoxide**.

Explain how **two** of these components can **negatively affect a person's physical performance**.

1. Component _____

_____

_____

_____

_____ [2]

2. Component _____

_____

_____

_____

_____ [2]

16 Media is a factor which can affect lifestyle decisions.

(a) State **two positive** effects that the media may have on a person's decision to lead an active, healthy lifestyle.

1. _____

_____ [1]

2. _____

_____ [1]

(b) State **two negative** effects that the media may have on a person's decision to lead an active, healthy lifestyle.

1. _____

_____ [1]

2. _____

_____ [1]

BLANK PAGE

DO NOT WRITE ON THIS PAGE

(Questions continue overleaf)

17 Study the results of a GCSE PE student's nutrition audit as shown in **Table 5**. Answer the questions that follow.

Table 5

	Question	Student response
1	How many portions of milk and dairy foods do you drink or eat each day?	**One portion a day**
2	How many portions of bread, rice, potatoes, pasta and other starch foods do you eat each day?	**3–5 portions a day, mostly wholegrain varieties**
3	How many portions from the meat, fish and alternatives, such as eggs, beans and other pulses, do you eat each day?	**Two portions a day**
4	How often do you eat processed meat or chicken products e.g. chicken nuggets, sausage rolls each week?	**Rarely**
5	How many portions of fruit and vegetables (excluding potatoes) would you normally eat each day?	**Three portions a day**
6	How many high fat, high sugar snacks would you eat in a week e.g. cakes, biscuits, crisps, chocolate bars, sweets?	**16 portions a week**
7	How many days of the week do you eat breakfast?	**Every day**
8	How often would you eat a takeaway meal?	**Once a week**

Evaluate the student's responses in respect of the government's recommendations, to explain **three strengths** and **three areas for improvement** in their eating pattern.

Quality of written communication will be assessed in your answer.

Strengths _____

_____

_____

_____

_____

Areas for improvement _____

_____ [12]

18 Study the food label in **Table 6** for a pre-prepared meal the student opted to have for dinner, and the Food Standard Agency traffic light system in **Table 7**. Answer the questions that follow.

Table 6

Nutrition Facts Serving Size 100 g Serves 1 person
Amount Per Serving
Calories 540
Total Fat 20 g
Saturated Fat 8 g
Trans Fat 2 g
Cholesterol 0.08 g
Sodium 1 g
Total Carbohydrate 30 g
Dietary Fibre 3 g
Sugars 5 g
Protein 25 g

Table 7

	Fat	**Saturates**	**Sugar**	**Salt**
What is HIGH per 100 g (red)	Over 17.5 g	Over 5 g	Over 22.5 g	Over 1.5 g
What is MEDIUM per 100 g (amber)	Between 3.1 and 17.5 g	Between 1.6 and 5 g	Between 5.1 and 22.5 g	Between 0.31 and 1.5 g
What is LOW per 100 g (green)	3 g and below	1.5 g and below	5 g and below	0.3 g and below

(a) Using specific information from **Table 6** and **Table 7**, evaluate this meal choice.

_____

_____

_____

_____

_____

_____

_____

_____ [4]

(b) Identify **two** other specific types of information that may be included on the **labelling** of the pre-prepared meal.

1. _____ [1]

2. _____ [1]

19 You are responsible for organising and running a squash **ladder competition** for students in school. Eight students entered and, to help create the ladder competition, the PE teacher ranked each student by ability, as shown below in **Table 8**.

Table 8

Seed	Student
Never competed	G
1st	A
2nd	H
3rd	B
4th	F
5th	D
6th	C
7th	E

(a) Complete **Table 9** to create a ladder for the competition and explain how you decided the order. Label students A–H.

Table 9

	Student
1	
2	
3	
4	
5	
6	
7	
8	

Explanation _____

_____

_____

_____

_____

_____ [4]

(b) Create **four** rules the students must follow when challenging other players or being challenged by other players on the ladder.

1. _____

_____ [1]

2. _____

_____ [1]

3. _____

_____ [1]

4. _____

_____ [1]

(c) State how the overall **winner** will be decided.

_____

_____ [1]

THIS IS THE END OF THE QUESTION PAPER

BLANK PAGE

DO NOT WRITE ON THIS PAGE

BLANK PAGE

DO NOT WRITE ON THIS PAGE

DO NOT WRITE ON THIS PAGE

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
Total Marks	

Examiner Number

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.