



General Certificate of Secondary Education
2023

Centre Number

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Candidate Number

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Physical Education

Paper 1

Factors Underpinning Health
and Performance



[G9771]

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WEDNESDAY 17 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 **7, 17(b) and 19.**



1 There are five main functions of the skeleton.

(a) Protection

State a **specific** example of how the skeleton protects vital organs.

[1]

(b) Mineral storage

State a type of mineral stored in bones.

[1]

(c) Blood cell production

State where red blood cells are produced in the bones.

[1]

(d) Support and shape

State how the skeleton provides support and shape to the body.

[1]



(e) Movement

Explain how the skeleton enables movement to happen.

[2]

[Turn over



2 Read the statements below and identify the correct one.

(a) The function of the **veins** is:

- A. Diffusion of gases
- B. Carrying blood away from the heart
- C. Carrying blood towards the heart

_____ is the function of the veins. [1]

(b) The four functions of the **digestive** system are:

- A. Ingestion, digestion, absorption and excretion.
- B. Respiration, digestion, absorption and excretion.
- C. Ingestion, digestion, expiration and excretion.

_____ is the four functions of the digestive system. [1]

3 Complete the sentences below.

_____ is the movement of gas from an area of high concentration to an area of low concentration.

After breathing in, the alveoli have a high concentration of _____

which transfers into the blood capillaries, while _____

transfers from the capillaries to the alveoli. [3]





4 Explain how food is broken down in the **mouth**.

[4]

5 Explain why **arteries** have thick, smooth, elastic walls and a small lumen.

[2]

[Turn over

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- 6 Study **Table 1** which shows two calculations of a person's cardiac output, at rest and when exercising. Answer the questions that follow.

Table 1

Calculation	Cardiac output
A	5.6 litres/minute
B	24 litres/minute

- (a) Define the term **cardiac output**.

_____ [1]

- (b) (i) Identify which calculation, **A** or **B** shown in **Table 1**, is the person's **cardiac output** when **exercising**.

Calculation _____ [1]

- (ii) Explain your choice.

_____ [3]





7 A person completed a 12-week aerobic training programme.

State **three long-term effects** that occur in the **slow twitch muscle fibres** and explain how each effect can help to **improve performance**.

Quality of written communication will be assessed in your answer.

1. _____

2. _____

3. _____

_____ [6]

[Turn over



8 Fig. 1 shows a beginner performing a squat for the first time, following a demonstration from a coach.



© Getty Images

Fig. 1

Explain the role of the **sensory nerves** for a beginner learning how to perform a squat for the first time.

Exteroceptors _____

Interoceptors _____

Proprioceptors _____

[6]





9 (a) Identify the likely outcome of a person consuming more energy than they expend over a long period of time.

- A. Maintain weight
- B. Weight loss
- C. Weight gain

_____ is the likely outcome of a person consuming more energy than they expend over a long period of time. [1]

(b) State why it is unhealthy to regularly burn more calories than are eaten.

_____ [1]

10 (a) State **three different** consequences that obesity could have on a person's health.

1. Physical health _____
_____ [1]

2. Mental health _____
_____ [1]

3. Social health _____
_____ [1]

(b) State and describe a positive lifestyle choice a person could make to reduce the risk of obesity.

_____ [2]

[Turn over



11 State **four** recommendations a person could regularly follow to achieve good quality sleep.

1. _____
_____ [1]

2. _____
_____ [1]

3. _____
_____ [1]

4. _____
_____ [1]

12 State **two** consequences associated with sleep deprivation on a person's health.

1. _____
_____ [1]

2. _____
_____ [1]

13 Explain a **short-term** effect of drinking alcohol on a person's performance in physical activity.

_____ [2]



14 (a) Set a **SMART** objective to help a person to quit smoking.

[2]

(b) State **two** targets to help the person achieve the set SMART objective in (a) to quit smoking.

1. _____

[1]

2. _____

[1]

[Turn over



15 A school conducted a mental and social health survey. The results are shown in Fig. 2 and Fig. 3 below.

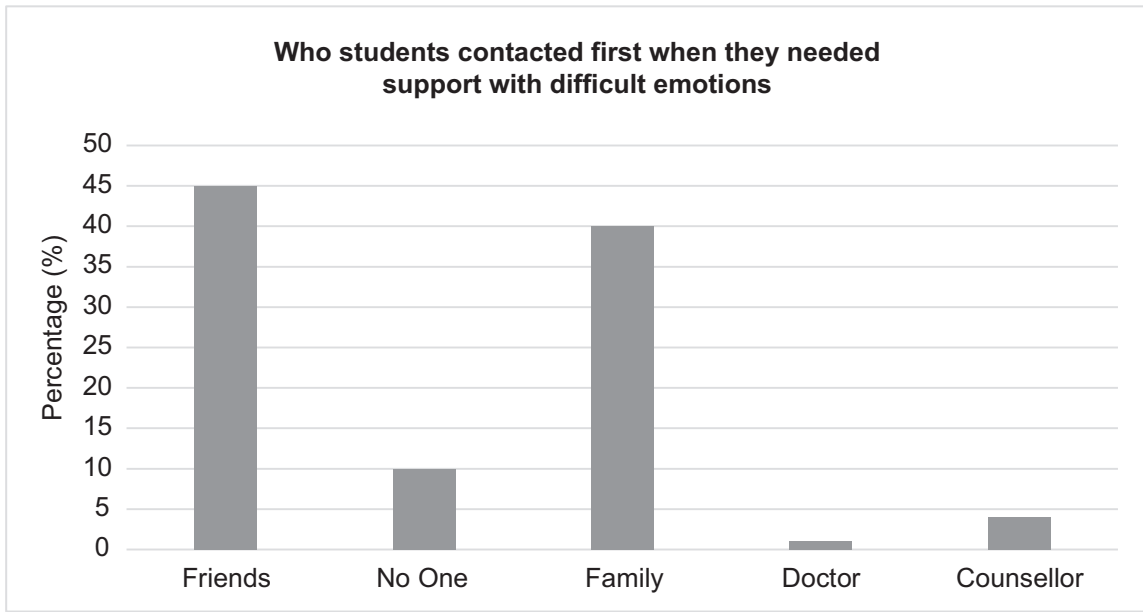


Fig. 2

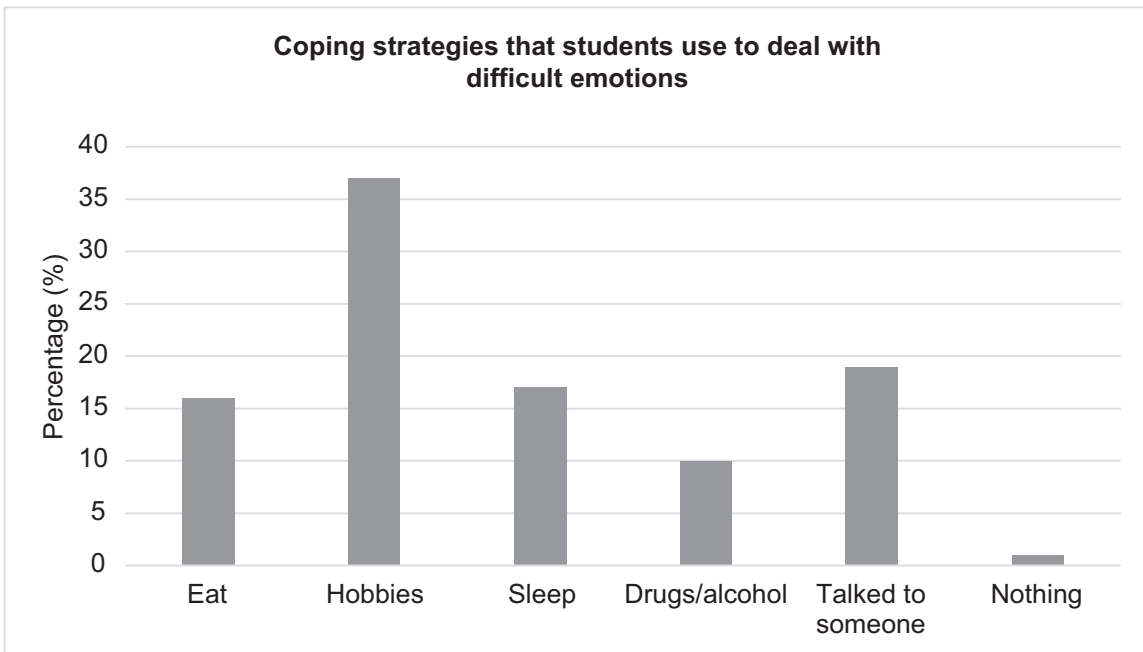


Fig. 3



(a) (i) From **Fig. 2** identify the group of people students are **most** likely to contact when they need support dealing with difficult emotions and suggest a **reason** for their choice.

[2]

(ii) From **Fig. 2** identify the group of people students are **least** likely to contact when they need support dealing with difficult emotions and suggest a **reason** for their choice.

[2]

(b) (i) From **Fig. 3** identify the coping strategy **most** used by students to deal with difficult emotions and suggest a **reason** for their choice.

[2]

(ii) Other than the coping strategy you stated in **(b)(i)** identify one other **positive** coping strategy used by students to deal with emotions.

[1]

[Turn over



(iii) From **Fig. 3** identify the percentage of students who used drugs or alcohol as a coping strategy.

_____ [1]

(iv) State why some students chose to use drugs or alcohol to cope with difficult emotions.

_____ [1]

(v) State a consequence of students doing nothing as a coping strategy.

_____ [1]



16 Complete **Table 2** by planning a suitable **method of training** and **type of exercise** to develop the stated components of health-related fitness.

Table 2

Health-related component of fitness	Training method	Type of exercise
Muscular endurance		
Flexibility		

[4]



17 Table 3 shows the results of a Year 12 student's health-related fitness tests.

Table 3

Component of fitness	Fitness test	Student's test results	Class average	'Excellent' category normative data
Aerobic fitness	12-minute Cooper run	1200 m	2000 m	2400 m
Muscular endurance	60 second sit up test	50 reps	42 reps	40 reps
Flexibility	Sit and reach test	26 cm	23 cm	32 cm

(a) Using the data in Table 3, compare the student's results for each health-related fitness test against the class average and normative data.

Aerobic fitness _____

Muscular endurance _____

Flexibility _____

[6]



18 Explain a factor that has contributed to increased leisure time in recent years.

[2]



19 Explain **three** ways **Disability Sport NI** aim to provide opportunities for a disabled person to participate in physical activity and sport.

Quality of written communication will be assessed in your answer.

1. _____

2. _____

3. _____

_____ [6]

[Turn over



- 20 A local charity organised a 5 km Colour Run with Year 12 students to raise money. **Table 4** summarises the outcomes of the event.

Table 4

<p>Achieved aims of the event:</p> <ul style="list-style-type: none">• The 5 km Colour Run raised £2450• The event brought Year 12 students together for a fun activity on the last day of term
<p>Participants</p> <ul style="list-style-type: none">• 90 students completed the 5 km Colour Run – walked, jogged or ran• 10 students did not take part• All students wore white t-shirts, after each km they were covered in a different coloured powder
<p>Event outcomes</p> <ul style="list-style-type: none">• The weather was good• There were no injuries• All students arrived on time• The event was organised by 35 volunteers• The powdered paint had to be cleaned up after the event• A local supermarket supplied bottled water, placed at five water stations• Resources required:<ul style="list-style-type: none">▶ Powdered paint £350▶ Hire of park £100▶ Additional resources provided by the PE Department: barrier tape, megaphones, cones, signs to show start, finish and km intervals

- (a) Using information in **Table 4** state **two** reasons the 5 km Colour Run was organised within the **voluntary sector** of the active leisure industry.

1. _____
_____ [1]

2. _____
_____ [1]



(b) Using information in **Table 4** state **two strengths** of the 5 km Colour Run.

1. _____
_____ [1]

2. _____
_____ [1]

(c) Using information in **Table 4** state **two weaknesses** of the 5 km Colour Run.

1. _____
_____ [1]

2. _____
_____ [1]

(d) Using information in **Table 4** state **two opportunities** to further improve the 5 km Colour Run.

1. _____
_____ [1]

2. _____
_____ [1]

(e) Using information in **Table 4** state **two threats** the local charity would have had to consider when planning the 5 km Colour Run.

1. _____
_____ [1]

2. _____
_____ [1]



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Examiner Number

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