



General Certificate of Secondary Education  
2015

Centre Number

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Candidate Number

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# Physical Education

MV18

[G9741]

**FRIDAY 15 MAY, AFTERNOON**

## TIME

1 hour 30 minutes, plus your additional time allowance.

## 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.**

Complete in blue or black ink only.

Answer **all** questions.

## INFORMATION FOR CANDIDATES

The total mark for this paper is 100.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Questions 13, 19 and 21.

1 There are many acceptable leisure time activities that do not involve participating in sport or participating in physical activity.

Name **two** non-sporting, non-physical leisure time activities.

[1 mark for each activity]

1. \_\_\_\_\_

2. \_\_\_\_\_

2 (a) Explain what is meant by the term **sports facility**.

[1 mark]

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(b) Explain how the **existence** of sporting facilities in an area may influence participation in a sport. [2 marks]

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3 It is said that you can be fit for one sport yet not be fit for another sport.

Provide an example from sport that shows you clearly understand this. [1 mark]

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4 Use **two** of the terms provided below to help you complete the statement that follows. [2 marks]

**social health**

**young people**

**self esteem**

**physical health**

**habits**

**mental fitness**

**character**

**physical fitness**

**older people**

When the term **exercise** is used, it usually refers to developing \_\_\_\_\_. When the term **training** is used, it usually refers to developing \_\_\_\_\_

5 Name **two** different and important factors that can affect the daily energy needs of a person. [1 mark for each factor]

1. \_\_\_\_\_

2. \_\_\_\_\_

6 (a) Nicotine is a powerful, fast-acting drug that is very addictive.

State **two** effects that **nicotine** from tobacco smoke has on the body. [1 mark for each effect]

1. \_\_\_\_\_

2. \_\_\_\_\_

(b) (i) Explain why the **carbon monoxide** in tobacco smoke affects aerobic performances. [1 mark]

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(ii) What does the body have to do to overcome the effect of the **carbon monoxide** to maintain aerobic performances? [1 mark]

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7 (a) Explain how the content of some **foods** can affect the quality of a person's sleep. [2 marks]

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(b) Explain how the content of some **drinks** can affect the quality of a person's sleep. [2 marks]

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8 State **three** differences between life in the 1800s and life today that would account for many people now having to plan sufficient and appropriate physical activity into their lives, in order to keep their bodies healthy and in good working order. [1 mark for each difference]

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_

9 Some older people who take regular and appropriate exercise cope better with everyday physical tasks than some younger people who do no exercise at all. Explain this. [2 marks]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10 (a) Complete the following sentences.

\_\_\_\_\_ energy is produced **without** oxygen. [1 mark]

\_\_\_\_\_ energy is produced **with** oxygen. [1 mark]

(b) What does **muscular power** enable a person's muscles to do? [2 marks]

Muscular power enables a person's muscles to

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(c) What determines a person's **muscular endurance**? [2 marks]

A person's muscular endurance is determined by

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11 (a) Explain in detail what **fartlek** training involves. [3 marks]

**(b)** What is **isometric** training? [2 marks]

(c) Name **two** different training methods used to develop **flexibility**. [1 mark for each method]

12 (a) When is the principle of peaking normally applied in a training programme? [1 mark]

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(b) What **two** changes to training usually happen in the peaking phase? [2 marks for each change]

1. \_\_\_\_\_

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2. \_\_\_\_\_

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13 State **three** physical changes that take place in the **heart** and/or **circulatory system** as a result of regular and appropriate exercise. Explain how each of these physical changes helps improve performance. [6 marks]

14 Explain **two** positive actions that a person should take to deal with personal sickness and/or injury when training and competing in sport so that no further harm occurs to them. [2 marks for each action]

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**15** Study **Table 1** below and answer the questions that follow.

**Table 1**

Energy Breakdown in Three Foods					
Food A		Food B		Food C	
Carbohydrate	45 %	Carbohydrate	75 %	Carbohydrate	60 %
Fats	35 %	Fats	15 %	Fats	25 %
Protein	20 %	Protein	10 %	Protein	15 %

**(a)** Which of the three foods, **A**, **B** or **C**, is closest to being what is regarded as a balanced, healthy food? [1 mark]

I would choose **Food** \_\_\_\_\_.

**(b)** Which food contains the greatest amount of energy (that is kilojoules/kilocalories)? **Explain** your answer. [2 marks]

I would choose **Food** \_\_\_\_\_. This is because

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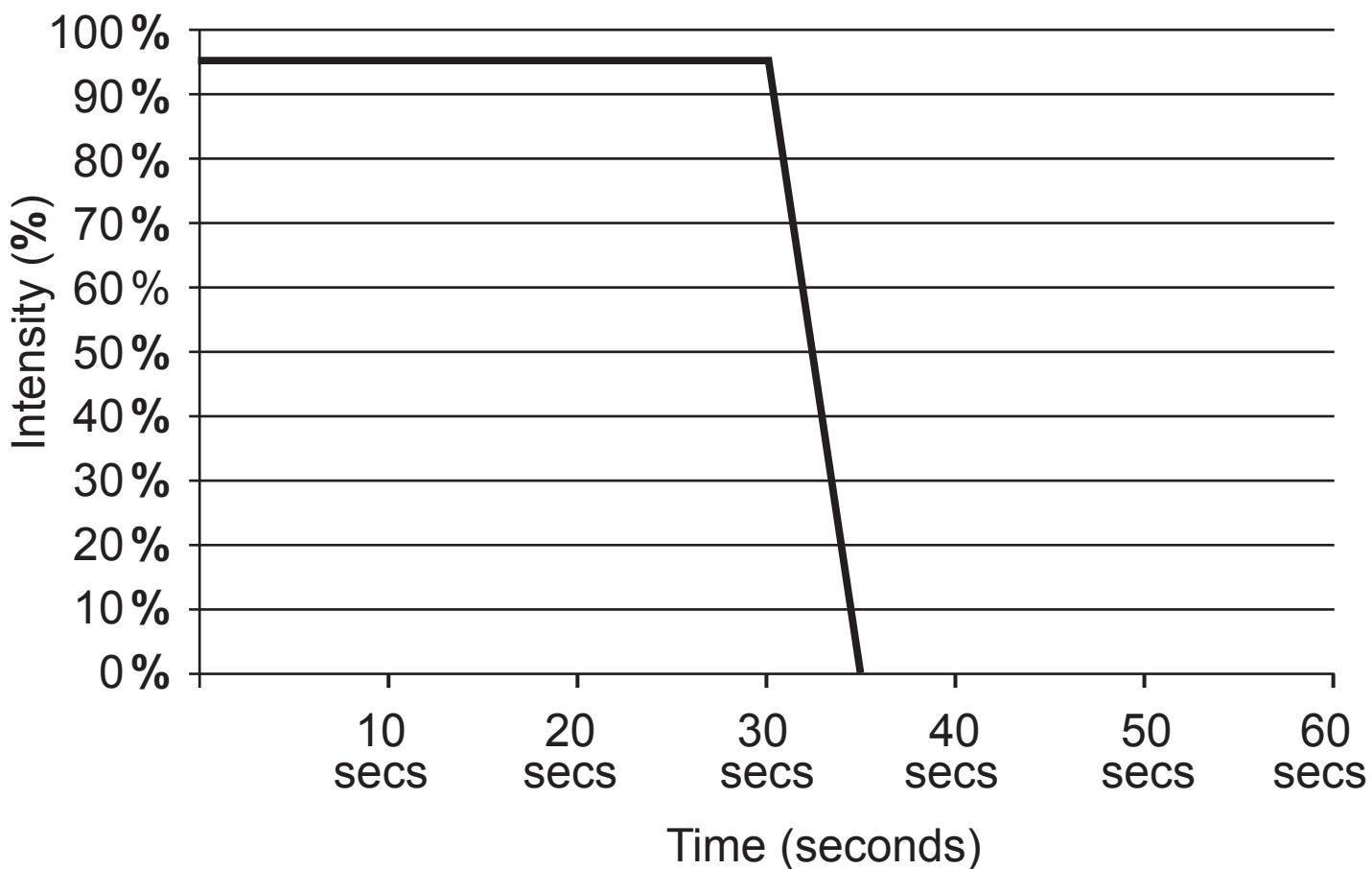
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**(c)** Food labels provide information on carbohydrates, fats and proteins. Name one other piece of information that is often provided on this part of the food label. [1 mark]

This part of the food label also provides information on

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**16 (a)** Study **Fig. 1** which shows the performance of an athlete and then answer the question that follows.

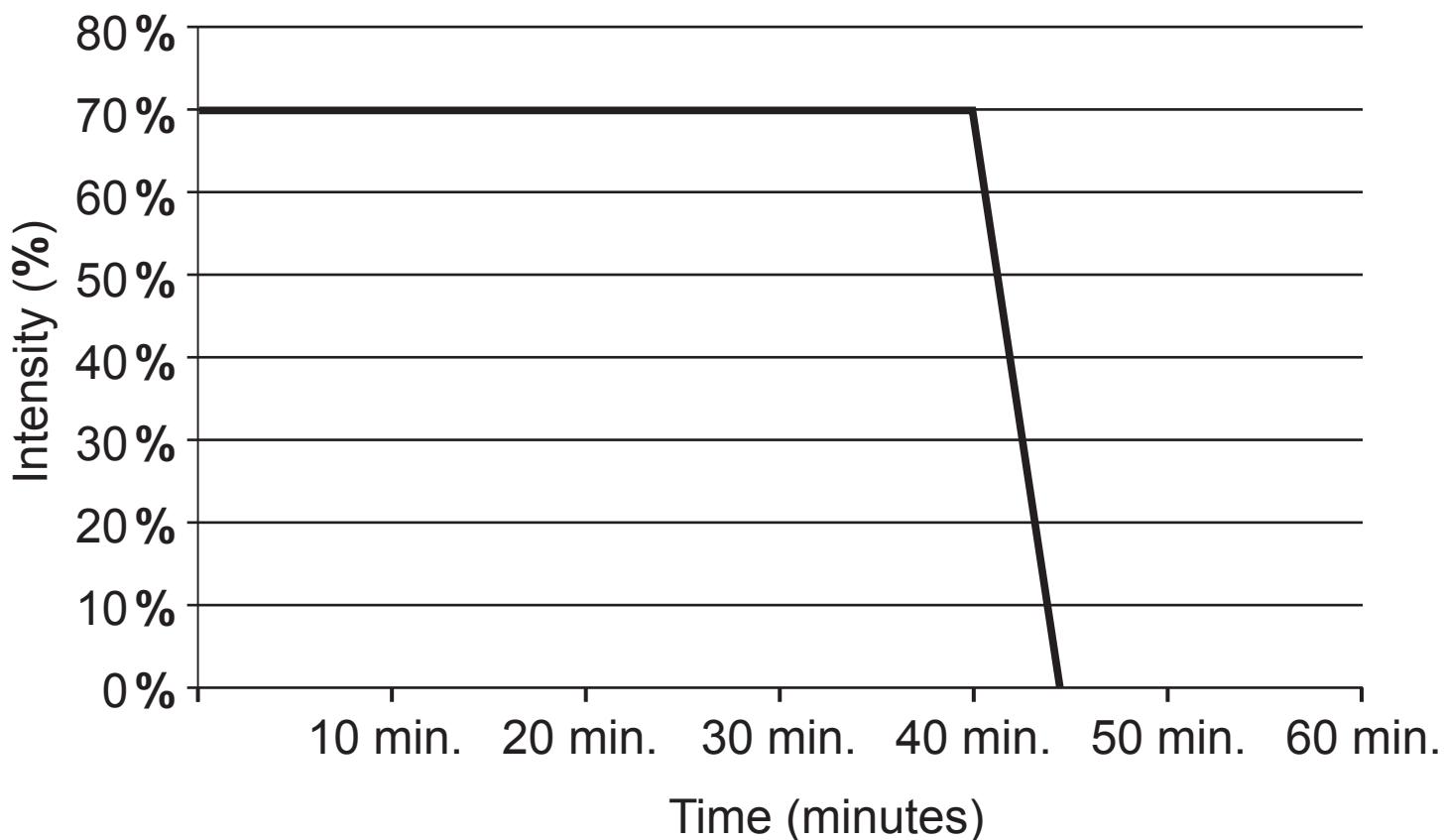


**Fig. 1**

What does **Fig. 1** show about the performance of the athlete? [2 marks]

**Fig. 1** shows \_\_\_\_\_

(b) Study **Fig. 2** which shows the performance of an athlete and then answer the question that follows.



**Fig. 2**

What does **Fig. 2** show about the performance of the athlete? [2 marks]

**Fig. 2** shows \_\_\_\_\_

17 Evaluate the choices in each of the five areas shown below.

Use **Table 2** on the opposite page to enter your choices from each of the areas, so that a twenty-year-old male will have an effective **aerobic** interval training workout of no more than 80 minutes, including rest. [5 marks]

Area 1

Average heart rate for the work periods (beats per minute)						
40	70	100	130	160	190	220

Area 2

Duration (time) of the work periods (seconds)						
10	20	30	40	50	60	70

Area 3

Recovery time between the work periods (seconds)						
0	60	90	120	150	180	210

Area 4

Number of repetitions						
5	10	15	20	25	30	35

Area 5

Number of sets (3 minute rest between sets)						
3	4	5	6	7	8	9

**Table 2**

Average heart rate for the work periods (beats per minute)	
Duration (time) of the work periods (seconds)	
Recovery time between the work periods (seconds)	
Number of repetitions	
Number of sets (3 minute rest between sets)	

**18** It is good practice to have at least 60 minutes of moderate exercise daily.

Without using a gym or similar sporting facility, outline **four** opportunities for a person to include 60 minutes but no more than 90 minutes of exercise into their day. Mention what exercise the person would do, where they would do the exercise, when they would do it and for how long they would do it. [4 marks]

My recommendations would be:

What exercise?	Where?	When?	How long?
1			
2			
3			
4			
Total number of minutes			

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**(Questions continue overleaf)**

**19** An athlete completed the 20 Metre Shuttle Run Test (Beep Test) twice in order to track the progress being made in developing aerobic fitness. The first test was done before the start of the training programme and the second test was done after completing the training programme.

Study the information given for the two occasions when the tests were done and then answer the question that follows.

Information	First fitness test	Second fitness test
<b>Venue:</b>	School gym	School grass area
<b>Weather:</b>	Not applicable (indoors)	Cold, but dry
<b>Equipment used:</b>	Cones, CD player with appropriate disc	Cones, CD player with appropriate disc
<b>Set-up:</b>	Cones set at both ends of the gym (20 m apart)	Teacher stepped out 20 m to place the cones
<b>Preparation:</b>	No warm-up	Warm-up completed
<b>Protocol:</b>	Cross line at end of gym with one foot. Push off the wall	Go beyond the cones with both feet before turning
<b>Finish of test:</b>	Finish when you do not make it to the end of the gym before a 'beep'	Finish when you do not make it to the cones on two consecutive beeps
<b>Results:</b>	90 lengths of gym completed	50 laps completed

Evaluate (judge) the **reliability** of the test results for tracking accurately the development of aerobic fitness. Explain your findings. [6 marks]

**20** Answer the following questions on circuit training to show that you can devise an effective **first** workout that will help to develop general health-related fitness for a group.

**(a) Explain the range of exercises that should be included in the circuit. [2 marks]**

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**(b)** Explain **the order** in which the exercises should be performed. [2 marks]

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(c) Explain why you would choose **a time in seconds for each exercise** to be performed rather than a number of repetitions to be done. [2 marks]

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(d) Explain the principles underlying your choice of **recovery time** between the exercises. [2 marks]

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(e) If you had a set time for the circuit workout, e.g. 30 minutes, what specific things (variables) could you adjust or change in the circuit so that everyone completed three full circuits in the set time? [2 marks]

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**21** What benefits are there for choosing exercises using 'fixed weight machines' in the gym for people who have not done weight training before? [6 marks]

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**(Questions continue overleaf)**

**22** Show that you can apply the appropriate principles of training to develop muscular strength.

**(a)** Record your choice of Repetition Maximum (RM) and number of repetitions for each of the five phases of the training programme. Remember, the training programme is to develop muscular strength.

You must choose **at least three** different Repetition Maximums (RM) over the five phases of the training programme. [5 marks]

Phases of the training programme	Repetition Maximum (RM)	Number of Repetitions	Number of Sets
Weeks 1–3			3
Weeks 4–6			3
Weeks 7–9			3
Weeks 10–12			3
Weeks 13–15			3

**(b)** Explain how your choice of Repetition Maximums (RMs) will help develop muscular strength over the five phases of the training programme. [3 marks]

(c) Explain how your choice of the number of repetitions is suitable for the five phases of the training programme.  
[2 marks]

**THIS IS THE END OF THE QUESTION PAPER**

For Examiner's use only	
Question Number	Marks
1	
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