



Centre Number

71	
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Candidate Number

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General Certificate of Secondary Education
2013

Physical Education

[G9741]

TUESDAY 14 MAY, AFTERNOON

MV18

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.

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 **12** and **25(a)**.

- 1 Complete the statement below by choosing the correct word from the following list. [1]

attitude

happiness

health

awareness

physical

shock

The World Health Organisation defines health as a state of

complete _____, mental and social well-being.

2 Over the past year, John ran lots of 10km races.

Underline the statement below that best demonstrates John's **improvement** in physical fitness. [1]

(a) John doesn't feel tired at the end of his 10km races.

(b) John keeps running the 10km races with improving running technique.

(c) John is not out of breath at the end of his 10km races.

(d) John's heart rate during 10km races stays within his target heart rate zone.

(e) John keeps running personal best times in his 10km races.

3 Which **one** of the following terms is most closely linked with **learning a skill**? [1]

practice

strength

diuretics

flexibility

peaking

relaxation

The term _____ is most closely linked with learning a skill.

4 Calcium is a mineral that should be included in the food/drinks that we take as it helps keep our bodies functioning properly.

Name **one** other major mineral that we need from our food/drink to help keep our bodies functioning properly. [1]

- 5 Which **one** of the terms, **high in carbohydrate**, **high in fat**, or **high in protein** best describes **potatoes**? [1]

Potatoes are best described as being **high in**

- 6 The number of kilocalories that a person needs depends on a number of factors. One factor is the person's **metabolism**.

What is a person's metabolism? [1]

A person's **metabolism** is _____

- 7 Which **one** of the following should be part of a normal, **healthy diet**? [1]

high salt intake

high fat intake

high fibre intake

high sugar intake

_____ is **linked** with a **healthy diet**.

8 Which **one** of the following terms is normally linked with **long-term over-eating**? [1]

anorexia nervosa

obesity

bingeing

health

bulimia

malnutrition

9 Which component of cigarette smoke:

(a) takes the place of oxygen in the red blood cells? [1]

(b) carries the irritants that damage the cilia? [1]

(c) raises the heart rate? [1]

10 Drinking too much alcohol over a prolonged period of time can affect a person's health.

Give **one** reason to account for the limit for “low-risk drinking” being up to **three units** per day for **men** but only up to **two units** per day for **women**. [1]

11 State **two** effects that sleep deprivation (lack of sleep) can have on health and/or performance. [1]/[1]

1. _____

2. _____

12 We all have personal characteristics that distinguish us from others, for example, introverts compared to extroverts. Likewise, sports have characteristics that distinguish them from others, for example, archery compared to ice hockey.

Explain why the sport of **archery** may best suit **introverts** and **why** the sport of **ice hockey** may best suit **extroverts**. [6]

13 Explain how regular and appropriate exercise can help with:

(a) weight control, [1]

(b) posture. [1]

14 (a) Energy can be produced **aerobically** or **anaerobically**.

Complete **Table 1** below by stating the event that best matches how the energy would have been produced in each case by **elite** athletes. [3]

Choose from the following events

Shot put

100 m

200 m

800 m

5000 m

Marathon

Table 1

Aerobic/Anaerobic Ratio	Event
50% Aerobic/50% Anaerobic	
85% Aerobic/15% Anaerobic	
1% Aerobic/99% Anaerobic	

(b) Aerobic fitness allows us to keep going at activities such as running for long periods of time without getting tired.

What determines a person's **aerobic** fitness? [3]

A person's **aerobic** fitness is determined by the ability of

(c) Running can be either an aerobic activity or an anaerobic activity.

What makes running an **anaerobic** activity? [2]

Running is an **anaerobic** activity when _____

15 Name the component of physical fitness that:

(a) is determined by the ability of a muscle or group of muscles to contract and relax quickly. [1]

(b) produces maximum force, or a considerable force, with speed in an explosive effort. [1]

16 Using the following list, choose the correct **component of physical fitness** for each of the activities given below.

Aerobic energy production

Anaerobic energy production

Muscular power

Muscular strength

Muscular endurance

Flexibility

(a) Sprinting flat out for 50 metres. [1]

This is an example of _____

(b) Slowly lifting a heavy object up off the floor. [1]

This is an example of _____

17 (a) Explain how the **heart rate** reacts over a period of 30 minutes of **continuous steady pace** training. Use heart rates to help you explain this. [2]

(b) Explain how the **heart rate** reacts over a period of 30 minutes of **fartlek** training. Use heart rates to help you explain this. [2]

18 Interval training can be used to improve **anaerobic fitness**.

Study the following interval training workout. **State two things you would change and explain why you would change them to make the workout most effective for improving anaerobic fitness.** [6]

Interval training workout

Distance:	200 m
Intensity:	75% of maximum heart rate
Repetitions:	4
Recovery time between repetitions:	20 seconds

19 Explain how **static flexibility** exercises are performed **passively**. [2]

20 (a) Explain the principle of **overload** that is used to develop physical fitness. [2]

(b) Explain how the “FITT” principle can be used to apply the principle of **overload** to improve physical fitness. [3]

21 (a) Explain the two different ways you can use time and distance to set up tests to monitor aerobic fitness levels. [3]/[3]

First way

Second way

(b) Which components of physical fitness would the following tests measure?

(i) Test 1 The number of press-ups or push-ups done in 60 seconds. [1]

This test would measure muscular _____

(ii) Test 2 The Standing Broad Jump (two footed long jump) [1]

This test would measure muscular _____

22 (a) Ventilation = Frequency of breaths/minute \times volume of air taken in each breath.

When you start to exercise, e.g. run, your ventilation increases. **Explain** this. [2]

(b) As a result of regular aerobic exercise, you are able to take more oxygen into your lungs with each breath. **Explain** what **physical changes** take place to allow this to happen. [2]

(c) As a result of regular aerobic exercise, the surface area for gaseous exchange is increased.
Explain what **physical changes** take place to allow this to happen. [2]

23 Clearly describe **four different things** that a sports person can do **to minimise the risk of getting injured** from playing **four different sports**. [1]/[1]/[1]/[1]

1. Name of sport _____

Action to minimise the risk of injury in this sport _____

2. Name of sport _____

Action to minimise the risk of injury in this sport _____

3. Name of sport _____

Action to minimise the risk of injury in this sport _____

4. Name of sport _____

Action to minimise the risk of injury in this sport _____

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(Questions continue overleaf)

24 Study the following cool-down which was suggested as being appropriate after a hard weight training workout in the gym. The purpose of the workout was to improve muscular strength. Answer the question that follows.

Details of the cool-down:

- Do 5 minutes hard running on the treadmill; 5 minutes hard cycling; 5 minutes hard rowing and 5 minutes hard work on a cross-trainer. This will provide a change from the weight training and will gradually lower the pulse rate.
- Do 2 sets of 30 repetitions for each of the exercises performed in the weight training workout but with a lighter weight (15RM). This will be easy work for the muscles and will also help the person to develop muscular endurance.
- Do 2 minutes of mobility exercises for each of the major joints. These will warm up the synovial fluid surrounding the joints and allow the joints to move freely.
- Do static flexibility exercises to stretch the major muscles of the body. Hold each stretch for 20–30 seconds. Repeat each exercise once.

Evaluate (judge) the suitability of each stage of the cool-down. **Explain** what you find right or wrong with each stage and what you would **recommend** should be done.

[12]

25 Your friend wants to **complete a 10km charity fun run in 6 weeks time**. Your friend can consistently and without too much effort run 10km in 60 minutes, so the challenge is to complete this charity 10km run in 50 minutes.

(a) State and briefly **explain** the **advice** that you would give to your friend with regard to the following: [10]

- The **type of exercise** that your friend should do in the workouts over the six weeks.
- The **method of training** that would be most appropriate for your friend to use over the six weeks.
- The **frequency** of the workouts over the six weeks.
- The **intensities** of the workouts over the six weeks.
- The **times** to be spent exercising in the workouts over the six weeks.

(b) Apply your advice to what would, in reality, be done over the training period. Complete the grid opposite to show what your friend has to do in each work out. [9]

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Week 2							
Week 3							
Week 4							
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