



Rewarding Learning

General Certificate of Secondary Education
2011

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71	
Candidate Number	
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Physical Education

[G9741]

TUESDAY 24 MAY, AFTERNOON



TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Answer **all** questions.

You are provided with a Resource Booklet for use with questions **17** and **18**.

Do not write your answers on the Resource Booklet.

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 to each question or part question.

Quality of written communication will be assessed in questions **17, 18(a)** and **19**.

For Examiner's use only	
Page Number	Marks
2-3	
4-5	
6-7	
8-9	
10-11	
12-13	
14-15	
16	
Total Marks	



1 Explain **two** things that a person can do to promote **physical health**.

1. _____
 _____ [2]

2. _____
 _____ [2]

2 Foods are composed of various combinations of carbohydrates, fats, proteins, vitamins, minerals, dietary fibre and water.

Use a tick (✓) to match each of the following foods to its most appropriate component in the table.

Foods	Components					
	Carbohydrate	Fats	Proteins	Vitamins & minerals	Dietary fibre	Water
Nuts						
Butter						
Chicken meat						

[3]

Examiner Only	
Marks	Remark

3 Study the following figures and choose which combination **(a)–(e)** is closest to being a balanced, healthy diet.

Underline your answer.

(a) 30% fats; 20% proteins and 50% carbohydrates

(b) 25% fats; 15% proteins and 60% carbohydrates

(c) 10% fats; 25% proteins and 65% carbohydrates

(d) 15% fats; 25% proteins and 60% carbohydrates

(e) 20% fats; 30% proteins and 50% carbohydrates [1]

4 Explain how the carbon monoxide in tobacco smoke makes the task of climbing stairs more difficult.

[2]

5 Drinking too much alcohol over a prolonged period of time can lead to serious health problems. State two.

1. _____ [1]

2. _____ [1]

Examiner Only	
Marks	Remark

6 Explain how some foods or drinks which, when taken before going to bed, could affect a person's quality of sleep.

[2]

7 Explain why many people today have to plan sufficient and appropriate exercise into their lifestyles in order to keep their bodies healthy and in good working order.

[2]

8 As a result of regular and appropriate exercise, physical changes take place within the **circulatory system**. How do these changes help improve aerobic performance?

[2]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

9 Use the appropriate words from the list below to complete the paragraph on aerobic energy production. A word may be used more than once.

endurance work nerves physical effort urea muscularity
oxygen nutrients circulatory breathing respiratory

Aerobic energy is produced with the body's use of oxygen.

Aerobic energy production is determined by the ability of

the _____ and _____ systems to deliver _____ and _____ to the working muscles and the ability of the working muscles to use the supply. [2]

10 The run up in the long jump requires the athlete to build up to near maximum running speed then to take off from one foot on the board with maximum effort and jump as far as possible to land in the sand.

(a) Describe the physical demands of the run-up for the long jump **and** explain how the energy will be produced for it (i.e. the balance between aerobic energy production and anaerobic energy production).

 _____ [2]

(b) Describe the physical demands of the take-off from one foot on the board **and** explain the type of muscular fitness required for it (i.e. the relative importance of muscular power, muscular strength and muscular endurance).

 _____ [2]

11 (a) Using an appropriate type of exercise, describe how the continuous steady pace method of training can be effectively used to develop aerobic fitness.

[2]

(b) In using weight training to develop muscular fitness, what decisions do you have to make for each weight training exercise for it to be effective?

[4]

Examiner Only	
Marks	Remark

12 Study **Resource 1** below and answer the questions that follow.

Resource 1

Intensities	> 95% MHR 80–85% MHR 70–75% MHR 60–65% MHR < 60% MHR
Work times	> 20 minutes 15–20 minutes 3–5 minutes 60–90 seconds 10–30 seconds
Repetitions	Perform once no repetitions 3–5 repetitions 8–10 repetitions 13–20 repetitions > 20 repetitions
Work/Recovery	Ratio > 1:10 Ratio of 1:10 Ratio of 1:4 Ratio of 1:1 No recovery time
Sets	5 sets (10 mins rest between) 4 sets (10 mins rest between) 3 sets (10 mins rest between) 2 sets (10 mins rest between) 1 set

Using the information in **Resource 1**, select the most appropriate intensity, work time, number of repetitions, work/recovery ratio and number of sets to show how **interval training** should be used to effectively develop **aerobic fitness** and **anaerobic fitness**. Write your answers in the table below.

Factors to consider	To effectively use interval training to develop aerobic fitness	To effectively use interval training to develop anaerobic fitness
Intensities		
Work times		
Number of Repetitions		
Work/Recovery ratios		
Number of sets		

[10]

Examiner Only	
Marks	Remark

13 Study **Resource 2** below. Show that you can apply the principle of progressive overload appropriately and effectively to **develop muscular power**. Write your answers in the table and explain your decisions.

Resource 2

Weeks	Weight	Repetitions
Weeks 1–3	40 kg	5
Weeks 4–6		
Weeks 7–9		

[4]

The explanation for my decisions:

[4]

Examiner Only	
Marks	Remark

14 For fitness test results to be **valid** and **reliable** there are certain principles that must be followed.

(a) Principle 1

The tests selected (or designed by you) should be suitable for the purpose.

Using an example explain this principle with regard to the fitness test results being valid.

[3]

(b) Principle 2

The protocol (procedures and rules) for the tests must be followed strictly.

Using an example explain this principle with regard to the fitness test results being reliable.

[3]

Examiner Only	
Marks	Remark

15 When a person starts to exercise vigorously the muscles demand more oxygen to allow them to work at this higher work rate.

The **circulatory system** responds to ensure that the working muscles get more oxygen. Explain **two** of its **immediate** responses.

1. _____

 _____ [2]

2. _____

 _____ [2]

16 Exercise is an important part of a healthy lifestyle, but it must be done safely for people to benefit. It is important to be aware of hazards and to be able to deal with them.

(a) What do you understand a hazard to be?

 _____ [2]

(b) Give an example of a hazard whilst participating in a sport.

 _____ [1]

17 Study the information in **Resource 3** (page 2 of the Resource Booklet). Use evidence from **Resource 3** to argue a case for John continuing to play **either** golf **or** volleyball.

The following are good reasons for John continuing to play _____ .

[8]

Examiner Only	
Marks	Remark

18 Study **Resource 4** (page 3 of the Resource Booklet) then answer the questions that follow.

(a) Explain what you think is **good** about the organisation of the circuit.

[6]

(b) From the information given in the table in **Resource 4**, choose **two** exercises where you think the resistance is definitely **too low** to effectively develop muscular endurance. Explain your choice.

[2]

Examiner Only	
Marks	Remark

(c) From the information given in the table in **Resource 4**, choose **two** exercises where you think the resistance is definitely **too high** to effectively develop muscular endurance. Explain your choice.

[2]

Examiner Only	
Marks	Remark

- 19 Identify a wide range of opportunities for a person to do a total of at least 60 minutes of **aerobic** exercise during a normal day. The exercise is not to include training at a gym or the like. The person should be able to remain in whatever clothes they would be wearing at that time.

Explain what could be done, at what intensity and for how long.

[10]

Examiner Only	
Marks	Remark

20 To evaluate the safety, appropriateness and effectiveness of a training programme for a specific event or sport you need to judge whether the following principles of training have been applied safely and appropriately: the principle of specificity; the principle of progressive overload; and the principle of rest/recovery and the principle of peaking.

(a) Explain how you judge whether the principle of **specificity** has been applied appropriately.

[2]

(b) Explain how you judge whether the principle of **progressive overload** has been applied safely and appropriately.

[3]

Examiner Only	
Marks	Remark

(c) **Explain** how you judge whether the principle of **rest/recovery** has been applied safely and appropriately.

[3]

(d) **Explain** how you judge whether the principle of **peaking** has been applied safely and appropriately.

[3]

THIS IS THE END OF THE QUESTION PAPER

Examiner Only	
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RESOURCE BOOKLET

Do not write your answers on this Resource Booklet

Resource 3

FOR USE WITH QUESTION 17

Do not write your answer on this insert

John has just finished school. He has taken a job at a local petrol station near his home. The petrol station is open 24 hours each day and he can be flexible about when he works.

John, his parents and older brother are members of the golf club which is next door to his home. His parents and brother play regularly. John played golf each weekend with some of his friends. While at school John's parents paid his golf fees.

Also while at school he played on the school volleyball team. This involved two practice sessions per week and one match. Now that he has left school, some of his friends, who live beside the volleyball club but twenty miles from him, want him to play volleyball for the club. The club uses the leisure centre as its base and he would be required to attend two set training sessions per week and to play a match each Saturday night.

Resource 4

FOR USE WITH QUESTION 18

Do not write your answer on this insert

ORGANISATION OF THE CIRCUIT

The purpose or objective of the circuit training programme is **to develop muscular endurance** in the major muscles of the body.

The group consists of 14 boys and 6 girls who are all between 16 to 18 years old and in good health.

The venue booked for the group is a purpose-built fitness gym which has a good range of fixed stations as well as free weights.

The group is organised into pairs and each pair works around the circuit where at each station they perform as many repetitions as they can in 30 seconds. Each person can choose a suitable weight/resistance for themselves. One works and the other counts the repetitions and records the number.

They then swap roles for that station. After each of the pair does the three sets, they move to the next station.

The table below shows one person's average number of repetitions done in each of the sets over the first two weeks of the training programme.

Order of Exercises	Average Reps for 1st Set	Average Reps for 2nd Set	Average Reps for 3rd Set
1 Upper body – shoulder and arm exercise	28	29	28
2 Upper body – chest and arm exercise	17	16	16
3 Upper body – back and arm exercise	29	27	30
4 Upper body – upper arm (front) exercise	8	7	4
5 Upper body – upper arm (back) exercise	30	30	29
6 Trunk – upper stomach exercise	15	14	13
7 Trunk lower stomach exercise	14	14	13
8 Trunk – left side exercise	17	15	14
9 Trunk – right side exercise	15	15	15
10 Trunk – back exercise	15	15	14
11 Lower body – hip exercise	26	27	28
12 Lower body – upper leg (front) exercise	18	12	6
13 Lower body – upper leg (back) exercise	28	27	30
14 Lower body – lower leg (back) exercise	16	15	14
15 Lower body – upper and lower leg exercise	8	5	3

