Rewarding Learning

# Physical Education 

[G9741]

TUESDAY 14 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.

## 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 12 and 25(a).

| For Examiner's <br> use only |  |
| :---: | :---: |
| Page <br> Number | Marks |
| $2-3$ |  |
| $4-5$ |  |
| $6-7$ |  |
| $8-9$ |  |
| $10-11$ |  |
| $12-13$ |  |
| $14-15$ |  |
| $16-17$ |  |
| $18-19$ |  |
| Total <br> Marks |  |

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

| attitude happiness | health |
| :--- | ---: | ---: |
| awareness physical shock |  |

The World Health Organisation defines health as a state of complete $\qquad$ mental and social well-being. [1]

2 Over the past year, John ran lots of 10 km races.
Underline the statement below that best demonstrates John's improvement in physical fitness.
(a) John doesn't feel tired at the end of his 10 km races.
(b) John keeps running the 10 km races with improving running technique.
(c) John is not out of breath at the end of his 10 km races.
(d) John's heart rate during 10 km races stays within his target heart rate zone.
(e) John keeps running personal best times in his 10 km races.

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

| practice | strength | diuretics |
| :---: | :---: | :---: |
| flexibility | peaking | relaxation |

The term $\qquad$ 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.

5 Which one of the terms, high in carbohydrate, high in fat, or high in protein best describes potatoes?

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?
A person's metabolism is $\qquad$
$\qquad$

7 Which one of the following should be part of a normal, healthy diet?
high salt intake high fat intake

## high fibre intake <br> high sugar intake

$\qquad$ is linked with a healthy diet.

8 Which one of the following terms is normally linked with long-term overeating?
anorexia nervosa obesity bingeing
health bulimia malnutrition
$\qquad$

9 Which component of cigarette smoke:
(a) takes the place of oxygen in the red blood cells?
$\qquad$
(b) carries the irritants that damage the cilia?
$\qquad$
(c) raises the heart rate?
$\qquad$

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.
$\qquad$
$\qquad$

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

1. $\qquad$
$\qquad$
2. $\qquad$
$\qquad$

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.
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13 Explain how regular and appropriate exercise can help with:
(a) weight control,
$\qquad$
$\qquad$
(b) posture.
$\qquad$
$\qquad$

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.

Choose from the following events
Shot put $100 \mathrm{~m} \quad 200 \mathrm{~m} \quad 800 \mathrm{~m} \quad 5000 \mathrm{~m}$ 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?
A person's aerobic fitness is determined by the ability of $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(c) Running can be either an aerobic activity or an anaerobic activity.

What makes running an anaerobic activity?
Running is an anaerobic activity when $\qquad$
$\qquad$
$\qquad$
$\qquad$

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.
$\qquad$
(b) produces maximum force, or a considerable force, with speed in an explosive effort.
$\qquad$
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.

This is an example of
(b) Slowly lifting a heavy object up off the floor.

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.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(b) Explain how the heart rate reacts over a period of 30 minutes of fartlek training. Use heart rates to help you explain this.
$\qquad$
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$\qquad$

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.

## Interval training workout

Distance:
Intensity:
Repetitions:
Recovery time between repetitions: 20 seconds
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$\qquad$
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$\qquad$

19 Explain how static flexibility exercises are performed passively.
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$\qquad$

20 (a) Explain the principle of overload that is used to develop physical fitness.
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$\qquad$
$\qquad$
$\qquad$
(b) Explain how the "FITT" principle can be used to apply the principle of overload to improve physical fitness.
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21 (a) Explain the two different ways you can use time and distance to set up tests to monitor aerobic fitness levels.

First way
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$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
Second way
$\qquad$
$\qquad$
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$\qquad$
(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. This test would measure muscular
(ii) Test 2 The Standing Broad Jump (two footed long jump)

This test would measure muscular $\qquad$
$\square$

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.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(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.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(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.
$\qquad$
$\qquad$
$\qquad$
$\qquad$

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. Name of sport $\qquad$
Action to minimise the risk of injury in this sport $\qquad$
$\qquad$
2. Name of sport $\qquad$
Action to minimise the risk of injury in this sport $\qquad$
3. Name of sport $\qquad$
Action to minimise the risk of injury in this sport $\qquad$
$\qquad$
4. Name of sport $\qquad$
Action to minimise the risk of injury in this sport $\qquad$
$\qquad$
$\qquad$
(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.
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25 Your friend wants to complete a 10 km charity fun run in 6 weeks time. Your friend can consistently and without too much effort run 10 km in 60 minutes, so the challenge is to complete this charity 10 km run in 50 minutes.
(a) State and briefly explain the advice that you would give to your friend with regard to the following:

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

|  | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Week 1 |  |  |  |  |  |  |  |
| Week 2 |  |  |  |  |  |  |  |
| Week 3 |  |  |  |  |  |  |  |
| Week 6 |  |  |  |  |  |  |  |
| Week 4 5 |  |  |  |  |  |  |  |

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