GCSE MARKING SCHEME

PHYSICAL EDUCATION

SUMMER 2014

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INTRODUCTION

The marking schemes which follow were those used by WJEC for the SUMMER 2014 examination in GCSE PHYSICAL EDUCATION. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conferences, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

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GCSE PHYSICAL EDUCATION – SUMMER 2014

SECTION A

Q.1 (a) Describe how each of the components of fitness below are used in the video clip.

Component of fitness	**Description of when the component is used**
Flexibility	e.g. reaching or stretching for holds
Local Muscular endurance	e.g. continual use of arms or fingers
Coordination	e.g. using both arms and legs / one arm and alternate leg
Strength	e.g. being able to lift or pull up climbers body weight

[4]

(b) Define each of the components of fitness in (a) and name a recognised test for each component of fitness.

Component of fitness	**Definition and test**
Flexibility	Definition: range of movement at a joint Test: sit and reach
Local Muscular endurance	Definition: sustained exercise of a specific muscle group Test: 1 minute press up / press up bleep test
Coordination	Definition: moving two more body parts simultaneously. Test: Alternate hand throw catch test.
Strength	Definition: one maximal contraction - force against resistance Test: 1 Rep max / grip dyno

[8]

(c) Explain why weight training could benefit performance in this activity

- Name component
- Development of strength
- Development of LME
- Power (2x1) [2]

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(d) Explain why it is important for climbers to warm up correctly.

No list

- Reduce injury
- Physical preparation
- Mental preparation

Only 2 marks if there is an explanation [2]

(e) Apart from fitness training, how could the climber **monitor** his training?

- Questionnaires
- Diary
- Performance
- Health screening - blood pressure, heart rate
- Coach feedback
- Target Setting
- Performance
- Video Analysis [2]

TOTAL 18 MARKS

Q.2 (a) (i) Identify the method of training demonstrated in the video clip.

Circuit	
PNF Stretching	
Weight	
Continuous	✓
Interval	

[1]

(ii) Identify the main component of physical fitness that could be developed from this method of training.

Speed	
Endurance	✓
Flexibility	
Balance	
Agility	

[1]

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(b) "When developing a training programme to improve physical fitness components, it is important to apply the principles of training".

Using specific examples, describe how the runner could apply the following principles to a training programme.

Principles of training	**Application**
SPECIFICITY	e.g. link the type of training to the component of fitness and/or sport
PROGRESSION	e.g. increasing the intensity and duration gradually, maybe frequency. Adherence
OVERLOAD	e.g. increase intensity, duration, frequency (*FIT*) linked to specific component
VARIANCE	e.g. stop Tedium, keep interest (adherence) stop plateauing

[8]

Theory 1x4
Application 2x4

(c) Using specific sporting examples, complete the table below.

Major component of fitness	**Sport/Activity/ Position/Event**	**Description of when the component is used**
e.g. Agility	Midfielder in football	Changing direction quickly when marking an opponent
e.g Reaction Time	100 m	At the start of the race

[4]

TOTAL 14 MARKS

Q.3 (a) Identify a reason why companies want to sponsor individual athletes.

Identification	
Advertising	✓
Develop sport	
Increase participation	
Interval	

[1]

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(b) Give two ways by which a local sports club could be funded.

- Donations
- Fund raising
- Sales of merchandise
- Sponsorship
- Grants

[2]

(c) Explain how local leisure centres can increase participation rates of children.

- Free swimming
- Variety of clubs
- Times of activities
- Summer play schemes
- Advertising
- Link to schools
- Fun activities
- Cost

2x1
+1 [3]

(d) Discuss the factors which have influenced **your** participation in sport / physical activity.

- School
- Family
- Friends
- Funding
- Role models
- Inspiration – Olympics
- Health
- Social
- Physical
- Mental

Level 1 (1-2 marks)
Few factors mentioned. List type answers with no amplification

Level 2 (3-4 marks)
There is limited knowledge of the reasons why they participate. Answers show some amplification.

Level 3 (5-6 marks)
Good knowledge of factors influencing participation. Answers are personalised and developed.

[6]

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(e) Discuss the risks associated with a sedentary lifestyle.

- Health issues
- Obesity
- Joints
- Blood pressure
- Cholesterol
- Heart problems

- Well being
- Stress reduction
- Social inclusion
- Belonging
- Escapism

- Physical
- Mental
- Social

Level 1 (1-2)
Some risks are mentioned. List type answers with no amplification

Level 2 (3-4)
There is limited knowledge of the risks. Answers show some amplification.

Level 3 (5-6)
Good knowledge of risks. Answers are amplified and developed.

[6]

TOTAL 18 MARKS

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SECTION B

Q.4 (a) Which of the following is the definition of STROKE VOLUME?

The amount of blood which the heart can pump with each beat. ✓

[1]

(b) What advantage is there for a sportsperson in improving his/her stroke volume?

- For any given task the heart will not have to work as hard as before, and will be able to deliver the same amount of O_2 as before with fewer beats of the heart.
- Lowering the Heart Rate.
- More blood.
- More O_2.
- More red cells.
- More work. [1]

Do not accept repeat of question.

(c) Which of the following is the definition of CARDIAC OUTPUT?

The amount of blood pumped out of the heart in 1 minute✓

[1]

(d) What happens to cardiac output during exercise

Cardiac output rises. Increases more quickly. [1]

TOTAL 4 MARKS

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Q.5 (a) The table below shows the heart rate of three 16 year olds athletes before and after exercise, running at the same speed and for the same duration on a treadmill.

	Resting Heart Rate	Heart Rate Straight After Exercise	Heart Rate 1 Minute After Exercising
A	60	110	65
B	70	185	130
C	70	150	80

(i) Tick the box to suggest who is the fittest.

A	✓
B	
C	

[1]

(ii) Explain your answer to 5 (a) (i).

Lower Resting Heart Rate
Lower MHR
Quickest Recovery

Any Two [2]

(b) Suggest **two** ways in which a high level of physical fitness could improve a sportsperson's performance.

- Enhanced work rate
- Maintenance of skill levels
- Enabling more PFC to be seen and used effectively
- Application of PFC (only one can be accepted)
- Less prone to injury.

Any Two [2]

(c) Which ENERGY SYSTEM would a 400 metre SPRINTER mainly use?

- Lactic Acid [1]

(d) What causes fatigue during high intensity exercise?

- Muscles need a lot of energy quickly - PC sources decreased
- But O_2 can't reach muscles fast enough
- Build up of Lactic Acid – strenuous exercise has to stop
- Inability to replenish energy stores

[2]

TOTAL 8 MARKS

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Q.6 (a) LIGAMENTS, CARTILAGE AND TENDONS help in providing efficient movement during physical activity.

Draw a line to link each term to the correct function. Each term should be linked to **one** function only.

TERM	FUNCTION
LIGAMENTS	Provide protection for bone ends: shock absorption
CARTILAGE	Join muscles to bone
TENDONS	Join bone to bone

- Ligaments – Join bone to bone. [1]
- Cartilage – Provides protection for bone ends – shock absorption. [1]
- Tendons – Join muscles to bone. [1]

(b) (i) Which type of Synovial Joint allows FLEXION/EXTENSION only?

- HINGE [1]

(ii) Give an example of where this type of joint can be found in the body.

- ELBOW
- KNEE [1]

(iii) Give a sporting example of the movement allowed by this type of joint.

- BICEP CURL
- KICKING A FOOTBALL [1]

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(c) (i) Name one type of synovial Joint which allows ROTATION.

- PIVOT or BALL AND SOCKET [1]

(ii) Give an example of where the type of joint named in (c) (i) can be found in the body.

- NECK or HIPS/SHOULDERS [1]

(iii) Give a sporting example of the movement allowed by the type of joint named in (c) (i).

- breathing – front crawl
- turning head in dance to initiate spins
- batsmans' stance in cricket
- bowling in cricket
- wind up of tennis serve – external rotation
- hips in javelin throw – internal rotation
- Pivot-neck
- Ball & Socket - Hip / Shoulder
- Swimming backwards [1]

TOTAL 9 MARKS

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Q.7 (a) Explain why a balanced DIET is important for all sportspersons.

Each of the 7 nutrients contribute to this BALANCED DIET

- food fuels the body
- provides energy for physical activity
- the amount taken in should match the energy requirements (unless linked)
- repairs injured tissue
- helps in growth of body tissue
- contributes to good health

– The amount taken in should match the energy requirements.

vegetables/fruits per day [2]

(b) Give **two** reasons to explain why being obese can affect sporting performance

- If obese, one has to work harder.
- Restricts FLEXIBILITY and MOBILITY – cannot execute correct techniques.
- Fatigue becomes more evident quickly – more effort to carry extra weight.
- Weight problems can affect performance/participation, e.g. low self-esteem, lack of confidence. [2]

(c) Explain the term.ENERGY BALANCE.

- Energy Balance:- FOOD INTAKE – ENERGY OUTPUT
- Definition for 1. [2]

(d) Why is FLUID INTAKE an important consideration for a sportsperson?

- Helps to stop DEHYDRATION:- for 1.

<u>HYDRATION CONTINUUM</u>

ACTIVITY
- Work
- Compete at high level
- Maintain level

HEAT PRODUCTION
- Temperature Control - for 1

SWEATING

FLUID REPLACEMENT

[2]

TOTAL 8 MARKS

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Q.8 (a) (i) Why can VERBAL GUIDANCE be of limited use on its own?

- Boring – information not understood – remembering information? [1]

(ii) For which level of performer is VISUAL GUIDANCE particularly suitable for learning a new skill?

- Particularly valuable in the early stages of learning. Cognitive stage [1]

(iii) When might MANUAL/MECHANICAL GUIDANCE be best used?

- Best suited to the performing of complex or dangerous skills – reduces fear and error – safety implications. [1]

(b) Explain how motivation can effect the development of a skill or performance

Learning will not take place without motivation.

Motivation
1. What makes a person act.
2. the amount of enthusiasm and determination a person has for physical activity.
3. a combination of our internal drive and outside factors which affect it (intrinsic and extrinsic motivation).

Motivation is responsible for:

1. The selection and preference for activity
2. Persisting with the activity
3. The intensity and effort put into the performance. The more motivated a performer is the harder he/she will work and the more likely they are to succeed [2]

(c) Name **two** factors which could affect EXERCISE ADHERENCE and MOTIVATION in sport.

- Time – money – energy – role conflict – social support – exercising with others – facilities – climate – physical discomfort. 1 x 2 [2]

(d) Explain why FEEDBACK is best when both **Knowledge of Performance** and **Knowledge of Results** are given by the teacher/coach.

Knowledge of KP and KR needed. Both are relevant for learning to take place. You can perform badly but win or you can perform well but lose.

KR = feedback on information about the final outcome of a performance. Very often obvious e.g. winning or losing a race. Essential for motivational purposes.

KP = feedback on technical efficiency of a performance, leads to technique progression and is vital for the next decision and feeds into the input of the Information Processing System e.g. sprinters need KP on reaction to the gun, pick-up, transition, stride cadence, knee lift, body stillness, finishing body position. [2]

TOTAL 9 MARKS

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Q.9 Describe the IMMEDIATE EFFECTS OF EXERCISE on the body.

Describe question – therefore, more than a list required.

- **YOUR HEART BEATS FASTER AND STRONGER**
  The rise in pulse rate allows more blood to be pumped to the lungs faster so that more oxygen can be circulated to the working muscles. By beating faster and stronger means that the stroke volume will increase since it is the amount of blood pumped out of the heart in one beat.

- **YOUR BREATHING QUICKENS AND DEEPENS**
  An increase in breathing rate will help us to get more oxygen to the working muscles, but eventually if we work hard enough for long enough we will reach a point where we cannot get enough oxygen (oxygen debt) and our muscles will stop working. The more efficient the body is at getting oxygen into the blood and to the muscles, the longer we can exercise for.

- **YOUR BODY TEMPERATURE WILL RISE**
  When we exercise our muscles produce heat so our body temperature rises (normal body temperature is about 37°C or 98.8°F). We can control our body temperature by sweating when we are too hot and shivering when we are too cold.

- **YOU START TO SWEAT**
  Most energy produced through respiration is used by the muscles but some of it is turned to heat and eventually we begin to sweat. Sweat on our skin will evaporate, but to do this requires energy. It gets this from the body as heat and as it uses this heat our body temperature falls (experiment by licking the back of your hand and blowing on it).

  - May become fatigued
  - May pick up a stitch
  - May pick up an injury
  - May become stressed
  - shunting of blood to working muscles

LEVEL 1 1-2 Itemised response, list type answers with little description.

LEVEL 2 3-4 Some description of the immediate effects of exercise.

LEVEL 3 5-6 Full engagement with the question. Full descriptions of the immediate effects of exercise.

TOTAL 6 MARKS

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Q.10 "Taking part in physical activity can help a person's mental and social well-being". Discuss

- Discuss Question, engagement with question needed to access higher levels.
- Can use Physical if linked.

Mental	●	Stimulation, enjoyment – 'feel good'
	●	Tension/stress relief
	●	Aggression – emotion control
	●	Emotions not experienced elsewhere – success, exhilaration, important, 'part of something', self-esteem.
Social	●	Increases confidence in stressful situations
	●	Teamwork and co-operation development
	●	Fulfilment – challenge – worth
	●	Friendship – meeting people

LEVEL 1	1-2	Basic knowledge of some mental and social benefits and its relationship with fitness.
LEVEL 2	3-4	Better understanding of the implications of the statement and more knowledge of **all** benefits which contribute to WELL BEING.
LEVEL 3	5-6	Full engagement with question/statement. Discussion in full of all well-being benefits which contribute to HEALTH. Might discuss the negative aspects of taking part in activity e.g. injury

HEALTH - State of physical mental and social/emotional well-being. [2]

TOTAL 6 MARKS

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