



**General Certificate of Secondary Education
June 2012**

Physical Education

48905

(Specification 4890)

**Unit 5: Knowledge and Understanding for the
Involved Participant (Double Award)**

Final

Mark Scheme

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Section A – Short answer questions

1	Fractures are common injuries in sport.	
1 (a)	State how a fracture can be recognised.	(1 mark)

Award **one** mark for stating how a fracture can be recognised.

- Pain
- Abnormal shape
- Swelling
- Bruising
- Unnatural position
- Bone sticking out
- Snapping sound when it happens
- Immobility

1 (b)	Give an example of a rule from a physical activity of your choice and clearly explain how the rule attempts to prevent injury.	(2 marks)
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Award **one** mark for the example of the rule and **one** mark for explaining how the rule attempts to prevent injury.

NB No marks for naming a physical activity. Local/school rules may apply.

- Football – wearing shin pads/ protect from impact.
- Cricket, equestrian, hockey goalkeeper – wearing a helmet/ protect head from impact.
- Cricket – wearing gloves or pads/ protect body from impact.
- Football – no tackling from behind or going over the top/ avoid over aggressive tackles.

Accept any other suitable response.

1 (c) Physical activities often involve landing from different heights.

1 (c) (i) Name a skill in a physical activity which involves landing from a height.
(1 mark)

Award **one** mark for naming an appropriate skill in a physical activity which involves landing from a height.

Possible examples:

- high jump
- gymnastics vault
- landing from a height in football/ basketball/ netball.

Accept any other suitable response.

1 (c) (ii) Explain how technique and equipment can be used to reduce the risk of injury when landing from a height for the skill you named in **1 (c) (i)**.
(3 marks)

Award up to **three** marks for an explanation of how technique and equipment can be used to reduce the risk of injury when landing from a height.

Possible examples:

- high jump – use Fosbury flop/ to land on shoulders/ not head/ crash mats/ to absorb impact
- gymnastics vault – roll on shoulders/ not flat/ appropriate mats/ pit/ to absorb impact
- football – landing after heading in football/ bending knees on landing/ to absorb impact/ feet flat on the floor/ balanced position/ use of arms to stabilise.

Accept any other suitable response.

2 Diet is extremely important to improve sporting performance.

2 (a) Why does the body need protein?
(2 marks)

Award **one** mark for each reason identified.

- Builds muscles
- Necessary to make enzymes and hormones
- Source of energy
- Repairs tissue within the body
- Essential to help body heal after injury
- Improve levels of concentration

NB Growth and repair = 1 mark, growth and repair of tissues/muscles = 2 marks.

2 (b)	For what type of activity would a sports person use 'carbohydrate loading'?	(1 mark)
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Award **one** mark for stating endurance type activities (lasting over 1 hour) or a relevant example eg marathon, football match.

2 (c)	Explain how and why a sports person would include carbohydrate loading in their diet.	(3 marks)
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Award up to **three** marks for a detailed explanation.

NB Students must include how and why to gain maximum marks (2 + 1 or 1 + 2 marks).

How – reduce amount of training 4 to 5 days before event (tapering)/ reduce carbohydrate stores/ then 24 - 48 hours prior to the event increase carbohydrate intake/ results in increased glycogen and energy stores.

Why – to be used throughout the event/ can delay tiredness/ improve performances in latter stages.

3	Using an example, explain how 'intrinsic knowledge of performance' is different from 'extrinsic knowledge of results'.	(4 marks)
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Award **one** mark for an explanation of each term and **two** further marks for an example which demonstrates an understanding of the differences between the terms.

- Intrinsic knowledge of performance – form of internal feedback during a performance or how well the player feels or senses they are performing.
- Eg a tennis player hitting the ball feels that good contact is made (hitting the sweet spot).
- Extrinsic knowledge of results – a form of external feedback at the end of a performance or the outcome of the performance.
- Eg a tennis player sees the ball land in the court/ they win the point/ the crowd cheers/ winning or losing/ success or failure.

Accept any other suitable response.

4	Jack is a talented sports performer who wants to improve his level of fitness.	
4 (a)	Explain why fitness testing is important before Jack begins a training programme.	<i>(2 marks)</i>

Award up to **two** marks for explaining why fitness testing is important before beginning a training programme.

- To gauge level of fitness or baseline fitness.
- To highlight weaknesses or strengths.
- To motivate the performer.
- Target setting.
- To make training more specific or appropriate or suitable.
- Check or monitor progress.

4 (b)	Describe the Illinois agility test.	<i>(2 marks)</i>
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Award up to **two** marks for describing the Illinois agility test (accept diagrams).

- Participant lies **face down** on floor.
- (At starting signal), participant jumps up and completes the course as quickly as possible.
- Cones set out over distance of 10 metres by 5 metres wide.

5	Weight training is one method of improving fitness.	
5 (a)	State and explain two benefits to health and fitness that can be gained from a well-planned weight training programme.	<i>(4 marks)</i>

Award **one** mark for each benefit and **one** further mark for the explanation, up to a maximum of **four** marks (2 x 2 marks).

- Increase in muscular strength/ power/ endurance/ more effective in a sports context/ carrying out everyday life.
- Increase in muscle tone/ more aesthetic appearance/ better stature.
- Increase in muscle bulk or larger muscles/ beneficial to some sports requiring weight or size.
- Increase in mental well-being/ feel good factor/ increase in self-confidence.
- Assisting in recovery after injury/ rehabilitation.
- Social well-being/ training in pairs or working with other team members.

Accept any other suitable response.

5 (b)	Explain how you would apply the FIT principle to a weight training programme.	<i>(4 marks)</i>
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Award up to **four** marks for explaining how you would apply the FIT principle to a weight training programme.

- Frequency – train more times during a week.
- Intensity – train harder/ by increasing resistance/ weight/ speed/ repetitions or sets.
- Time (duration) – train for a longer time.

5 (c)	State and explain two health and safety precautions that you should take when completing a weight training session.	<i>(4 marks)</i>
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Award **one** mark for stating the precaution and **one** further mark for the explanation, up to a maximum of **four** marks (2 x 2 marks).

NB Injury can only be credited once unless specific eg pulling muscles.

- Ensure you are fit enough to start a programme/ to avoid over stressing your body.
- Warm up/ to minimise risk of injury.
- Warm down/ to assist recovery.
- Use correct technique/ to avoid short or long term injuries.
- Ensure you have access to appropriate equipment/ avoid injury.
- Don't eat prior to exercise/ avoid cramp/ indigestion/ lethargy.
- Remove dangerous objects from the training area/ to avoid a trip hazard.
- Collars on weights/ equipment not secure/ may fall.
- Ensure stations are not too close to each other/ to avoid collisions.
- Are facilities safe for use/ wet floors/ slip hazard.
- Ensure you have a spotter/ avoid dropping weight.
- Drink water to avoid dehydration/ maintain focus.

Accept any other suitable response.

6	Cheryl is a popular and effective coach. She is very good at non-verbal communication.
6 (a)	Other than non-verbal communication, name two communication and interpersonal skills that an effective coach should have. (2 marks)

Award **one** mark for each communication and interpersonal skill named.

- Use of appropriate terminology/ language.
- Listening/ responding to users.
- Team working/ co-operation/ adaptability/ delegation.
- Persuading/ advising/ influencing colleagues and customers.
- Reacting to/ and adapting to trends and changing situations.
- Verbal communication/ volume/ clarity/ intonation/ projection.
- Control/ presence/ ability to gain and maintain the individual or group's attention.
- Personal qualities/ determination/ conviction/ enthusiasm.

Accept any other suitable response.

6 (b)	Explain how non-verbal communication skills help Cheryl to be an effective coach. (2 marks)
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Award up to **two** marks for explaining how non-verbal communication skills help Cheryl to be an effective coach.

NB Do not accept manual guidance as it is not a non-verbal communication skill.

Non-verbal communication including demonstrations/ signals/ gestures.

Demonstration will be accurate/ the demonstration is attainable/ performers pick up the key cues/ easily or readily/ as they understand the various signals or gestures.

Accept any other suitable response.

7 (a) State and explain **two** reasons why people choose to take part in physical activities. (4 marks)

Award **one** mark for stating why people choose to take part in physical activities and **one** further mark for the explanation, up to a maximum of **four** marks (2 x 2 marks).

Reasons for choosing to take part in physical activities:

- social benefits/ company/ to socialise/ making or meeting friends/ peer pressure/ family pressure
- mental benefits/ enjoyment or to have fun/ relaxation/ recharge batteries/ chill out/ cathartic/ excitement/ adrenaline rush/ thrill/ challenge/ self-fulfilment/ self-satisfaction/ feel good factor/ aesthetic/ artistic appreciation
- physical benefits/ maintain or improve fitness/ accept any component of fitness/ muscle tone
- high level of skill/ because I am good at it
- overcoming obstacles/ environment
- health reasons/ relieves stress or tension/ weight control/ lowers BP.

Accept any other suitable response.

7 (b) You have been asked to recommend a sporting activity for a Year 7 student.

Name **four** factors that you should take into account before giving your recommendation. (4 marks)

Award up to **four** marks for naming each factor.

NB Do not accept age.

Fitness levels/ physical maturity/ cost/ gender/ travel/ access/ facilities available/ health/ environment/ challenge/ social situation/ peer pressure/ family/ tradition/ culture/ religion/ skill level/ personality/ safety/ disability (mental/ physical)/ somatotype or weight or height or size.

Accept any other suitable response.

8

Explain how injuries may be prevented by warming up before participating in any physical activity.

(4 marks)

Award up to **four** marks for explaining how injuries may be prevented by warming up before participating in physical activity.

- Aerobic phase/ raise in body temperature/ increase elasticity in muscles and tendons/ reduce likelihood of muscle pulls or tendon damage or ligament damage.
- Stretching or mobilising/ to increase range of joint movement.
- Mental preparation/ to focus on the task/ to prevent careless accidents.
- Skill preparation or rehearsal/ to prepare for the intensity of the activity/ to avoid specific injuries associated with the activity.
- Different types of stretching – dynamic, passive, ballistic, static, active.

Section B – Questions based on the preliminary material

9	(a)	<p>James's programme of sport and his lifestyle are damaging his health.</p> <p>State and explain three different ways in which James's health is being damaged.</p> <p style="text-align: center;">(Answer in continuous prose)</p>	<p><i>(6 marks)</i></p>
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Please use the following grid to award a mark for both the content and the Quality of Written Communication (QWC) based on the following information.

QWC is part of the award of marks in level marked questions only. In these answers the quality of the content is assessed and a level mark awarded accordingly to that content. As is sometimes the case, the knowledge of physical education may be sound at a particular level but the examiner may not be sure as to whether there is quite enough to raise the mark **within** that level. In this case the examiner should consider the QWC of the answer. QWC that fulfils the criteria for the level should lead to the rise in the mark but where the QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate.

In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box saying 'QWC raised mark'. QWC cannot be used to raise a candidate's mark into the next level.

Level 3	<p>5 – 6 marks</p> <p>Three different examples fully explained to show how James's programme of sport and his lifestyle is damaging his health.</p> <p>Students spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely.</p>
Level 2	<p>3 – 4 marks</p> <p>Two different examples fully explained or at least three different examples with limited explanation to show how James's programme of sport and his lifestyle is damaging his health.</p> <p>Students spell, punctuate and use rules of grammar with reasonable accuracy and use a range of specialist terms.</p>
Level 1	<p>1 – 2 marks</p> <p>One example fully explained or at least two different examples with limited explanation to show how James's programme of sport and his lifestyle is damaging his health.</p> <p>NB A list of examples with no explanation (maximum 1 mark).</p> <p>Students spell, punctuate and use rules of grammar with some accuracy. Limited range of specialist terms used.</p>
0 marks	No creditworthy material.

Examples of content could include:

- overuse injuries cause deterioration in performance (physical & mental tasks), tiredness and lethargy, leaving James more prone to further injury and continual fatigue;
- overtraining results in less chance of recovery and deterioration in performance;
- excess fats will increase cholesterol levels, which then line the arteries walls and could potentially cause heart and circulatory problems and increase blood pressure; insufficient protein slows the recovery period and inhibits muscle tissue repairing; insufficient carbohydrates leads to a lack of quick and slow release energy needed to sustain high work levels; insufficient fresh fruit and vegetables will result in insufficient levels of minerals or vitamins which can make the body more prone to illness;
- muscular and joint injuries caused from not warming up and cooling down;

NB Diet should only be credited once as an example.

Example Answers

Level 3 (6 marks)

James's health is being damaged due to his excessive programme of sport and an unhealthy lifestyle. His diet is poor lacking in protein, therefore this is not allowing him to adequately repair and recover, which results in him invariably being tired and prone to poor performances and injury. Due to overtraining he is not getting enough rest which again will result in increased fatigue and a greater chance of injury. He needs to ensure that he warms up and down properly otherwise he will sustain injuries and also slow down the recovery process. This is not helped in that he often plays when tired and injured, therefore making the situation worse and having damaging effects on his health. His sporting commitments are detrimental to both his social life and any opportunity to relax with friends.

3 examples fully explained.

Level 2 (4 marks)

To maximise his performance and reduce the damage to his health James needs to make a few changes to his sports programme and lifestyle. He is doing far too much sport and needs to look at reducing the amount of activities he is taking part in. This will allow him time to rest and recover. He also needs to improve his diet so that he is getting the correct amounts of nutrients to help him both recover but also repair any damage to his overall health due to excessive training and performing. These changes will improve James's health.

2 examples fully explained.

Level 1 (2 marks)

James has an unhealthy lifestyle mainly due to taking part in too many physical activities. He needs to do less so that he can recover and be fully prepared for his next activity. This will help reduce the risk of further injuries due to over tiredness and improve his well-being.

1 example fully explained.

9 (b)	Explain how wearing the appropriate footwear could help James to reduce the risk of injury.	<i>(3 marks)</i>
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Award up to **three** marks for explaining how wearing the appropriate footwear could help James to reduce the risk of injury.

- In football and rugby – should have the appropriate length of stud/ for the conditions of the pitch/ to provide grip/ to prevent slipping.
- In basketball – should have ankle or foot support/ stabilise ankle when landing/ prevent specific injuries (ie sprain).
- Shock absorber/ thick soled/ provide cushioning or absorb impact/ reduce specific injuries (ie shin splints).
- Correct fit/ avoid blisters or corns.

Accept any other suitable response.

9 (c)	How could James change his programme of sport to give himself a more balanced lifestyle?	<i>(3 marks)</i>
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Award up to **three** marks for stating how James could change his programme of sport to give himself a more balanced lifestyle.

- Reduce the amount of time training.
- Reduce the number of sports being played.
- Prioritise his sports or training commitments.
- (Persuade his parents that he should) drop his swimming commitments.
- Consider not attending basketball practice.
- Introduce a day or rest days into his new programme.

9	(d)	State two different ways that James could change his diet and explain why these changes would be beneficial to his performance in any of his physical activities.	
		(Answer in continuous prose)	<i>(6 marks)</i>

Please use the following grid to award a mark for both the content and the Quality of Written Communication (QWC) based on the following information.

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In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box saying 'QWC raised mark'. QWC cannot be used to raise a candidate's mark into the next level.

Level 3	5 – 6 marks Two examples fully explained to show how a change in diet would benefit James' performance. Students spell, punctuate and uses rules of grammar accurately and use a wide range of specialist terms precisely.
Level 2	3 – 4 marks Two examples are partially explained to show how a change in diet would benefit James' performance. NB If only one example given and fully explained (maximum 3 marks). Students spell, punctuate and use rules of grammar with some accuracy. Limited use a range of specialist terms.
Level 1	1 – 2 marks One example with limited explanation to show how a change in diet would benefit James' performance. NB A list of examples with no explanation (maximum 1 mark). Students spell, punctuate and use rules of grammar with some accuracy. Limited range used of specialist terms
0 marks	No creditworthy material.

Examples of content could include:

- reduce fast food, fatty foods and simple carbohydrates to maintain optimal weight for performance
- ensure a balanced diet to meet demands of an active sportsperson
- eat more protein to aid body growth to be able to exert more power eg when kicking or throwing a ball
- repair muscular damage to aid recovery enabling James to train with more intensity or for longer
- eat more fruit and vegetables for minerals and vitamins as they allow blood to carry more oxygen around the body which helps to prevent fatigue
- eat more complex carbohydrates to give more slow release energy in order that he can prolong activity throughout the week
- ensure he eats meals at set times eg breakfast to provide energy throughout the day and to boost energy levels
- ensure hydration to maintain water levels and replace water lost due to exercise to prevent dehydration when participating which helps improve concentration and so make fewer mistakes. This also aids decision making.

Example Answers

Level 3 (6 marks)

James is a very active sportsman, however he has a poor diet. He needs to reduce his intake of fatty foods and simple carbohydrates (sugars) and eat a more balanced diet to meet the demands of his active lifestyle. He needs to take more complex (slow release) carbohydrates so that he has sufficient energy to complete all his activities throughout the day to the best of his ability. This will improve his performances in the evening sessions as he will be able to train harder for longer. He can do this by starting the day with a healthy breakfast. He needs to increase his protein to improve performance as this will allow him to recover quicker (and therefore train and perform sooner) and also get stronger so that he is able to exert more power into his performances and therefore be more effective. It is essential that he replaces water lost through exercise, to aid the transportation of nutrients and maintain heat control. Loss of water can result in a dramatic drop in levels of performance, affecting his decision making in football and basketball.

2 examples fully explained.

Level 2 (4 marks)

To improve his performance, James needs to change his diet. He needs to reduce his fast and sugary food intake as this does not give him enough energy to complete his physical activities throughout the day. He needs to eat more fruit and vegetables as these contain essential vitamins and minerals and will increase his levels of concentration and benefit his decision making. Bananas are a good source of both slow release and quick release carbohydrates which will give James the energy he needs to keep going for longer without getting tired and this will make him perform better in Football and Rugby.

2 examples with 1 example fully explained.

Level 1 (1 mark)

James should change his diet if he wants to improve his performance. It needs to be more balanced so that he takes in the right amount of carbohydrates, protein, fats, vitamins and minerals, fibre and water. Carbohydrates will give him energy and protein will help in muscle growth and repair. He also needs to drink lots of water which he will lose through sweating.

A list of examples with no explanation.

- | | |
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| 9 (e) | James is a very active sportsperson and should be aware of health and safety.

State why James needs to complete a risk assessment. Explain one potential environmental hazard that he might identify before taking part in one of his physical activities. <i>(3 marks)</i> |
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Award **one** mark for stating why a risk assessment is necessary and up to **two** marks for explaining a potential environmental hazard that he might identify for one of his activities.

- To minimise the risk of injury/ accidents.

Football/ Rugby

- Condition of the pitch – waterlogged/ too hard/ frozen/ pot holes/ specific injury.
- Weather conditions – thunder and lightning/ visibility/ may slip, trip or fall.
- Foreign objects on the pitch/ prevent tripping/ specific injury (ie cuts).
- Are the goal posts secured/ prevent falling on a player/ specific injury (ie concussion).
- Are the nets (if appropriate) secured safely/ avoid player getting caught in netting (ie dislocated finger).

Basketball

- Condition of the court – not wet/ slippery surface/ safe surface/ specific injury.
- Foreign objects on the court/ prevent specific injury.
- Are the backboards secured/ prevent falling on a player/ specific injury.

Weight Training

- Ensure all equipment is safe to use/ collars in place, no faulty collars, no damaged cables or old equipment/ prevents weights falling off/ specific injury.
- Wet floors/ could slip/ and drop weights or fall into equipment.
- Objects on floor or other equipment left lying around (dumb bells, bars, benches)/ could fall over/ specific injury.
- Ceiling height/ may cause damage when performing certain exercises/ specific injury.
- Temperature (air conditioning)/ is it too hot or cold/ dehydration/ specific injury.
- Ensure sufficient room whilst training/ to avoid collisions/ to prevent specific injury to yourself or others.

Swimming

- Wet floor – no running around poolside/ slip or fall/ specific injury to yourself or others.
- Chemicals in water/ avoid eye irritation.
- Identify shallow and deep end/ don't hit bottom or get out of depth/ specific injury.
- Lane ropes in place/ to avoid swimming in to other swimmers/ could swim in to ropes causing specific injury.
- Diving into the pool – awareness of others swimming below/ avoid landing on someone.
- Temperature of water – too warm or cold/ affecting time spent in water.