

## **Cambridge National**

### **Sport Science**

Unit **R041**: Reducing the risk of sports injuries

Level 1/Level 2

### **Mark Scheme for June 2018**

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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## Annotations in RM Assessor

Annotation	Description	Annotation	Description
	Tick	<b>KU</b>	Knowledge and understanding
	Cross	<b>EG</b>	Example/Reference
<b>BOD</b>	Benefit of doubt	<b>DEV</b>	Development
<b>TV</b>	Too vague	<b>L1</b>	Level 1 response on extended response Q15 (*)
<b>REP</b>	Repeat	<b>L2</b>	Level 2 response on extended response Q15 (*)
<b>IRRL</b>	Significant amount of material which doesn't answer the question	<b>L3</b>	Level 3 response on extended response Q15 (*)
<b>SEEN</b>	Noted but no credit given / indicates sub-max reached where relevant	<b>S</b>	Sub-max reached

- **KU, EG and DEV** used instead of ticks on the extended response question to indicate where knowledge or development points from the indicative content have been made.
- On the extended response question 15 (\*), one KU, EG or DEV does not necessarily equate to one mark being awarded; the marking is based on a levels of response mark scheme which awards a level and mark holistically based upon the quality of the response overall against the levels descriptors.

Please send a brief report on the performance of candidates to your Team Leader (Supervisor) by the end of the marking period. The Assistant Examiner's Report Form (AERF) can be found on the RM Cambridge Assessment Support Portal.

Your report should contain notes on particular strength displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

Question	Answer	Marks	Guidance
1. (a)	False	[1]	
(b)	False	[1]	
(c)	True	[1]	
(d)	True	[1]	
2.	<p><b>2 marks for 2 from:</b></p> <ol style="list-style-type: none"> <li>Shortness of breath/ breathlessness/ out of breath/ difficulty breathing/ heavy breathing</li> <li>Tightness in chest or chest pain</li> <li>Pale/ clammy skin/ change of skin colour</li> <li>Grey/ blue lips (if severe)</li> <li>Dizziness</li> </ol>	[2]	<p>Do not accept wheezing and coughing (in question)</p> <p>Narrowing of airways = VG Tiredness = VG</p>
3.	<p><b>2 marks for 2 from:</b></p> <p><b>Sub-max 1 (benefit):</b></p> <ol style="list-style-type: none"> <li><u>Heighten/control</u> arousal levels or get in the zone/ right frame of mind/ decreased anxiety or settle nerves/ more relaxed or <u>control of</u> aggression</li> <li><u>Increase</u> motivation/ drive</li> <li>Use of mental rehearsal or know what to do</li> <li><u>Increase</u> confidence</li> <li>Reaction time is <u>improved/quicker</u></li> </ol> <p><b>Sub-max 1 (how it can reduce injury):</b></p> <ol style="list-style-type: none"> <li>The performer tackles/ plays within the rules of the game/ less likely to perform dangerous moves</li> <li>You are not reckless when tackling/ playing or plays safely</li> <li>You use the correct technique when performing</li> </ol>	[1]	<p>Do not accept improve focus/ concentration (in question)</p> <p>Increases aggression = VG Point 1 (look for control of aggression)</p> <p>Pumped up = VG Point 1</p> <p>Accept any relevant example of how injury can be reduced even if psychological benefit incorrect or VG</p> <p>Do not accept any examples relating to focus/ concentration</p>

Question	Answer	Marks	Guidance
	4. The performer is fully committed in the tackle/playing the game 5. The performer is quicker to the ball or able to move out of the way quicker	[1]	Accept way it can reduce injury even if psychological benefit is incorrect or VG
4. (a)	Abrasion → Graze	[1]	
(b)	Contusion → Bruise	[1]	
(c)	Soft tissue injury → Sprain	[1]	
5.	<p><b>2 marks for 2 from:</b></p> <p><b>Sub-max 1 (Type 1):</b> Occurs independently of the person's lifestyle / often diagnosed in childhood or early on in a person's life / there is a genetic predisposition/inherited or not associated with excess body weight/obesity</p> <p><b>Sub-max 2 (Type 2):</b> Influenced by (unhealthy) lifestyle/poor diet/lack of exercise or usually diagnosed in adulthood (over 30 years)/occurs later on in life with aging or often associated with excess body weight/obesity</p>	[1]  [1]	<p>Do not accept use of insulin as one difference (in question)</p> <p>Do not accept eating too much sugar = VG</p>
6.	<p><b>3 marks for 3 from:</b></p> <p>Type of injury = Chronic/Overuse</p> <p>Symptom = Aching/pain/tenderness/swelling/inflammation (in shins/lower leg)</p> <p>Treatment = RICE/rest/ice/compression/bandage/taping or elevation or physio</p>	[3]	<p>Do not accept shin splints as type of injury (in question)</p> <p>Accept correct symptom and/or treatment responses even if type of injury is incorrect</p> <p>Mark first symptom only</p>



Question	Answer	Marks	Guidance
8. (a)	<p><b>1 mark for 1 from:</b></p> <p>1. Boxing/Rugby/American football/Ice Hockey/Hockey/Hurling/Lacrosse /American football/Taekwondo/Cricket</p>	[1]	<p>Accept first response only</p> <p>Accept any equivalent practical example</p>
(b)	<p><b>1 mark for 1 from:</b></p> <p>1. Hockey stick/football/cricket bat/tennis racquet/goalposts</p>	[1]	<p>Accept first response only</p> <p>Do not accept clothing/footwear items (Answer is to do with performance equipment)</p> <p>Ball/bat/posts = BOD</p> <p>Accept any equivalent practical example eg cricket/golf ball</p>
9. (a)	<p><b>2 marks for 2 from:</b></p> <p><b>(Acute injury) – sub max 1</b></p> <p>1. Cut/wound/soft tissue injury/abrasion/sprains/strains/graze/</p> <p><b>(Practical example of occurrence) – sub max 1</b></p> <p>2. (Caused by) a clash of heads (when heading in football) / awkward landing (in gymnastics) / tackle / hit (with hockey stick) / punched (in boxing) / falling/tripping over (in netball)</p>	[2]	<p>One mark for suitable <b>acute</b> injury</p> <p>Accept fracture = BOD (used to prevent further injury by using the bandage to secure it to another limb or to hold dressings in place)</p> <p>One mark for any suitable example</p> <p>Do not accept chronic injuries</p> <p>A runner getting a cut leg (Point 1) caused by a spike from a running shoe (Point 2) = 2 marks</p>

Question	Answer	Marks	Guidance
<b>(b)</b>	<p><b>2 marks for 2 from:</b></p> <ol style="list-style-type: none"> <li>1. Reduces swelling/decreases blood <u>flow</u> (to the area)</li> <li>2. Minimise/stop blood <u>loss</u>/compresses the injury</li> <li>3. Keeps the area immobilised/not move the injury as much/keeps it in place/holds it together/provides support</li> <li>4. Stops/prevents infection or protects/prevents further injury</li> <li>5. Carry on with the activity</li> </ol>	<b>[2]</b>	<p>Do not accept eases/relieves pain (in question)</p> <p>Holds ice pack in place = VG</p> <p>Recover from the injury quicker = VG</p>
<b>10. (a)</b>	<p><b>2 marks for 2 from:</b></p> <ol style="list-style-type: none"> <li>1. Encourages/increases/stimulates the flow of blood (into the injured part of the body) or reduces swelling</li> <li>2. Increases flexibility or stretching <u>of the muscles</u> (in the injured part) or helps relax/loosen <u>muscles</u> or relieves tension/tightness <u>of muscles</u></li> <li>3. Can help manage/relieve pain or soothes or manage DOMS/muscle soreness</li> <li>4. To break down scar tissue</li> <li>5. Aids recovery</li> </ol>	<b>[2]</b>	<p>Do not accept descriptions of massage (response needs to describe the benefits)</p> <p>Eases the muscles = BOD Point 2</p> <p>Loosens <u>the injury</u> = VG</p>
<b>(b)</b>	<p><b>2 marks for 2 from:</b></p> <ol style="list-style-type: none"> <li>1. Stretching/give appropriate stretches</li> <li>2. RICE</li> <li>3. Taping</li> <li>4. Bandaging</li> <li>5. Sling</li> <li>6. Splints</li> <li>7. Hot/heat pack or cold/freeze spray treatment/ice (bath)</li> </ol>	<b>[2]</b>	<p>Do not accept massage (in question)</p> <p>Creams/Ointments = VG</p> <p>Rest or compression on its own = VG</p> <p>Keeping it high/elevating = VG</p>



Question	Answer	Marks	Guidance
11. (a)	<p><b>2 marks for 2 from:</b></p> <ol style="list-style-type: none"> <li>1. (Lordosis) – <b>Forward/inner</b> curving of the <b>lower</b> back/spine/lumbar</li> <li>2. (Impact) – <b>Back</b> ache/pain or weaker back/spine or stress placed on other parts of the back or poor balance or muscular imbalance or poor technique/slower or slouching</li> </ol>	<b>[2]</b>	<p>Curving of the lower spine = VG (no direction of curve)</p> <p>Look for direction (forward/inner) of curve and position (lower)</p> <p>Reference to poor performance = VG unless linked to poor balance or equivalent</p> <p>Pain on its own = VG</p>
(b)	<p><b>2 marks for 2 from:</b></p> <ol style="list-style-type: none"> <li>1. Scoliosis</li> <li>2. Kyphosis</li> <li>3. Round shoulder</li> <li>4. Pelvic tilt</li> </ol>	<b>[2]</b>	<p>Do not accept lordosis (in question)</p> <p>Accept phonetic spellings</p> <p>Mark the first two responses only</p>
(c)	<p><b>2 marks for 2 from:</b></p> <p><b>Sub-max 1 (Lack of exercise):</b></p> <p>Lack of (core) muscle strength or weaker muscles or may result in being overweight or obese or unfit</p> <p><b>Sub-max 1 (Cause of poor posture):</b></p> <p>Less support or more strain on back or difficulty to stand upright or slouching</p>	<b>[2]</b>	

Question	Answer	Marks	Guidance
12. (a) (i)	<p><b>2 marks for 2 from:</b></p> <p><b>(Size of the group)</b></p> <ol style="list-style-type: none"> <li>1. Space being too small / or group too big or crowded for the number of people in the group <b>so</b> people bumping into each other/more chance of injury/collisions or need bigger space/ more equipment</li> <li>2. Group too large <b>so</b> cannot hear instructions / can't concentrate / focus on task or need to communicate effectively or more organisation needed</li> <li>3. Large groups may require more staff (safety reasons) or (awareness of) student and staff ratio</li> </ol>	<b>[2]</b>	<p>Response needs to link size of the group as being small/large (or equivalent) or some reference to the number of people.</p> <p>Do not credit opposites as additional marks - big group needs more space so less chance of collisions and a small group can use small space so less chance of bumping into other players = REP Point 1</p> <p>A smaller group will have less chance of collisions and hear instructions clearly = 2 marks (Point 1 and 2)</p> <p>Answers may also come in the form of examples: Too many people on a single badminton court may lead to someone being hit in the face by the racquet/collision (Point 1)</p>
12. (a) (ii)	<p><b>2 marks for 2 from:</b></p> <p><b>(Experience of the group)</b></p> <ol style="list-style-type: none"> <li>1. An individual needs to be set a warm up that is at the right level for their experience/ability</li> <li>2. An experienced group can have a higher intensity/demanding warm up or less experienced group will have a lower intensity/demanding warm up</li> <li>3. less experienced group may need a more fun/easier warm up (to keep interest/motivation) or may not listen or a more experienced group can follow a more complex warm up</li> <li>4. A less experienced group won't know what to do or a more experienced group may take the warm up themselves</li> </ol>	<b>[2]</b>	<p>Responses require explanation on experience of group eg high/low (or equivalent)</p> <p>A warm up needs to be right for the participants = VG</p> <p>You need to keep the group engaged = VG</p> <p>Responses must link to experience and not other factors such as obesity:</p> <p>If a person is overweight and doesn't exercise they should not include running that is too fast for them, walking/faster walk may be more suitable = VG (linked with being overweight rather than experience)</p>
<b>(b)</b>	<ol style="list-style-type: none"> <li>1. Age (of participants) or individual fitness levels or any medical conditions/disabilities (participants may have)</li> </ol>	<b>[1]</b>	<p>Do not accept size of the group or experience of the group (in question) or environment</p> <p>Accept any named medical condition e.g. asthma, epilepsy</p>

Question	Answer	Marks	Guidance
13. (a)	(i) Mobility (ii) Dynamic <u>movements</u> (iii) Passing/dribbling/shooting	[3]	Accept any other relevant skill rehearsal examples that are suited to <b>hockey</b> Practicing skill used in the game = VG
(b) (i)  (ii)  (iii)	A warm up <b>increases</b> heart rate A cool down <b>gradually decreases</b> heart rate A cool down <b>speeds up</b> the removal of lactic acid	[3]	
14.(c)	Sprints to reduce the risk of muscle soreness and stiffness	[1]	
15.	<p><b><u>Levels of response</u></b></p> <p><b>Level 3 (7-8 marks)</b>            A comprehensive response:            - shows detailed knowledge and understanding            - makes many points, many of which are well developed.            - is well structured and consistently uses appropriate terminology.            - there are few if any errors in grammar, punctuation and spelling.</p> <p><b>Level 2 (4-6 marks)</b>            A competent response:            - shows good knowledge and understanding.            - makes some valid points a few of which may be developed.            - is reasonably well structured and uses some appropriate terminology.            - there are occasional errors in grammar, punctuation and spelling.</p> <p><b>Level 1 (1-3 marks)</b>            A basic response:            - shows limited knowledge and understanding.            - makes some basic points which are rarely developed.</p>		Differentiating between levels look for:  <p><b>Level 3:</b></p> <ul style="list-style-type: none"> <li>• Most (4+) extrinsic factors (numbered points) are clearly developed with detailed understanding</li> <li>• At the top of this level all extrinsic factors are developed with use of clear examples</li> <li>• Probably some reference to before and during the game</li> <li>• Very good knowledge of sub-headings (a-c) within each extrinsic factor</li> <li>• Very few QWC errors</li> </ul> <p><b>Level 2:</b></p> <ul style="list-style-type: none"> <li>• Understanding of some (3+) extrinsic factors (numbered points), with some examples</li> <li>• Some knowledge of sub-headings (a-c) within each extrinsic factor or good development in two extrinsic factors but 2+ developments eg Environment developed through weather and other participants</li> <li>• May have some reference to extrinsic factors before and during the game for top of band</li> <li>• Confusion between intrinsic and extrinsic factors may make it a lower band of Level 2 response</li> </ul>

Question	Answer	Marks	Guidance
	<p>- has limited coherence and structure with little or no use of appropriate terminology. - errors in grammar, punctuation and spelling may be noticeable and intrusive.</p> <p><b>0 = nil response or no response worthy of credit.</b></p> <p><b>Indicative content</b> Candidate responses are likely to include: (relevant responses not listed should be acknowledged)</p> <p><b>Numbered/lettered points</b> = knowledge / understanding <b>Bullet points</b> = likely to be development of knowledge or EG</p> <p>1. <u>Type of activity</u></p> <ul style="list-style-type: none"> <li>● Football is a contact sport</li> <li>● During: Tackles will be made</li> </ul> <p>2. <u>Coaching/supervision</u></p> <p>(a) Poor/incorrect coaching techniques</p> <ul style="list-style-type: none"> <li>● During: Be aware of coaches encouraging aggressive play eg a two-footed tackle</li> </ul> <p>(b) Ineffective communication skills</p> <ul style="list-style-type: none"> <li>● During: Ensure players are able to understand instructions</li> </ul> <p>(c) Importance of adhering to rules and regulations</p> <ul style="list-style-type: none"> <li>● Before/during: checking all players have shin pads</li> </ul>		<p><b>Level 1:</b></p> <ul style="list-style-type: none"> <li>● <i>Understanding of few extrinsic factors (1-2), with limited examples with simple identification rather than description</i></li> <li>● <i>Limited knowledge of sub-headings (a-c) within each extrinsic factor</i></li> <li>● <i>Intrinsic factors are confused with extrinsic</i></li> <li>● <i>Little reference to before and during the game</i></li> <li>● <i>At the top of this level one at least one developed point for an extrinsic factor</i></li> <li>● <i>1 mark for any credit worthy statement related to extrinsic factors</i></li> </ul> <p><i>Indicate the level at the end of the response</i></p>

Question	Answer	Marks	Guidance
	<p>3. <u>Environmental factors</u></p> <p>(a) Weather</p> <ul style="list-style-type: none"> <li>● Before/during: check the weather conditions are suitable before and during the match eg not too cold/hot</li> </ul> <p>(b) Playing surface/performance area and surrounding area/environment</p> <ul style="list-style-type: none"> <li>● Before/during: check the pitch is safe to play on eg not too wet/slippy/hard/uneven/objects</li> <li>● Before/during: call the game off or abandon the game if conditions are too bad</li> </ul> <p>(c) Other participants</p> <ul style="list-style-type: none"> <li>● Before: Checking all items of jewellery are removed</li> <li>● Before: Check all players are wearing appropriate equipment/footwear eg Shin pads/studs</li> <li>● During: Players are playing to the rules eg no fouls</li> <li>● During: Caution/send-off players</li> </ul> <p>4. <u>Equipment</u></p> <p>(a) Protective equipment</p> <ul style="list-style-type: none"> <li>● Before: are all players wearing appropriate equipment eg shin pads in football</li> </ul> <p>(b) Performance equipment</p> <ul style="list-style-type: none"> <li>● Before: eg checking how hard/soft the ball is</li> <li>● Before/during: is it safe/broken</li> </ul> <p>(c) Clothing/footwear suitable for playing surface</p> <ul style="list-style-type: none"> <li>● Before: eg checking studs on football boots</li> </ul>		

Question	Answer	Marks	Guidance
	<p>5. <u>Safety hazards</u></p> <p>(a) Risk assessments/safety checks</p> <ul style="list-style-type: none"><li>● Consider what may cause harm to the players</li><li>● Identify who and how players could become injured</li><li>● Take steps to minimise/eliminate risks</li><li>● Ensure the match is safe to go ahead</li><li>● Before: carried out before the match eg checking pitch for litter/debris/dog faeces</li><li>● During/Ongoing: do conditions change during the game eg weather/snow/hail causes pitch to become dangerous</li></ul> <p>(b) Emergency action plan</p> <ul style="list-style-type: none"><li>● Measures in place to deal with injuries</li></ul>	<b>[8]</b>	

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