



## **Cambridge National**

## **Sport Science**

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

Level 1/Level 2

## **Mark Scheme for January 2014**

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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:

1		281	?	Unclear
2		31	BOD	Benefit of doubt
3		21	Cross	Cross
4		741	DEV	Development
5		661	EG	Example/Reference
6		611	K	Knowledge
7		311	L1	Level 1
8		321	L2	Level 2
9		331	L3	Level 3
10		271	REP	Repeat
11		361	S	S (to be used to indicate 'sub max reached' in these units)
12		811	SEEN	Noted but no credit given
13		11	Tick	Tick
14		731	VG	Vague

Question		Answer/Indicative content	Mark	Guidance
1	(a)	<p><b>One mark max</b> for each description from the following:  <b>Equipment:</b></p> <ul style="list-style-type: none"> <li>- Use of or lack of or malfunction/broken protective equipment (e.g. shin pads needed in football to help prevent lower leg fractures)</li> <li>- Correct performance equipment required/using incorrect/wrong equipment (e.g. rock climbing harness to prevent falls)</li> <li>- Equipment lying around / inappropriately placed</li> <li>- Suitable clothing or footwear for that particular sport (e.g. studded boots in football to prevent slipping)</li> <li>- Equipment protectors can prevent injury e.g. post protectors</li> </ul>	1	<p>The candidate does not have to give an example but may do so to help in the description.</p> <p>Accept opposites</p> <p>A maximum of 1 mark for each factor described. Give marks for the equivalent. A <u>description</u> is needed as to why each is used.</p> <p>Allow broken equipment  Do NOT accept handling equipment incorrectly/being hit by the ball or other equipment  Do NOT accept examples of protective equipment on their own</p>
	(b)	<p><b>One mark for:</b>  <b>Environmental factors:</b></p> <ul style="list-style-type: none"> <li>- Weather being too hot leading to such things as sunburn/heat stroke or too cold/raining/snowing/foggy</li> <li>- Playing surface, performance area or surrounding area (e.g. broken bottles etc)hard floor/icy/wet/uneven/pot holes</li> <li>- Other participants (e.g. too many people for the size of the area)</li> </ul>	1	<p>Description required to gain the mark rather than a simple identification.</p> <p>Accept opposites</p>
	(c)	<p><b>One mark for:</b>  <b>Coaching or Supervision:</b></p> <ul style="list-style-type: none"> <li>- Poor or incorrect coaching techniques</li> <li>- Not checking the area/equipment</li> <li>- Poor communication</li> <li>- Lack of adherence to rules and regulations</li> <li>- Lack/wrong knowledge of medical conditions</li> <li>- Inadequate attention/not looking</li> <li>- Encouraging (too much) aggression/foul play</li> </ul>	1	<p>Do NOT accept inadequate supervision/coaching</p> <p>Accept opposites</p>

Question	Answer/Indicative content	Mark	Guidance
2	<p><b>One mark</b> for any of the following or similar:</p> <ul style="list-style-type: none"> <li>- Minimising the risks of injuries occurring / making equipment/performer safer</li> <li>- Identifies potential risks/hazards/dangers of an activity</li> <li>- Helps you to plan an alternative safer sports activity if risks are identified</li> <li>- Can identify if potential risks are low, medium or high</li> <li>- Check whether game is safe to go ahead</li> </ul>	1	<p>Do not accept a repetition of the question in the answer i.e. 'risk assessment' or 'assessment of risk'</p> <p>Check risk/check it's safe is vague</p>
3	<p><b>Two marks max – one mark for each explanation:</b></p> <p><b>Arousal/anxiety levels</b></p> <ul style="list-style-type: none"> <li>- Too stressed/worried/nervous <u>to perform well</u></li> <li>- May be too committed/or example of aggression</li> <li>- Lack confidence /Too soft / pull out of tackles /</li> <li>- May not be able to concentrate or focus/ Make wrong decisions</li> </ul>	2	<p>If the opposite point is made to avoid injury then accept.</p> <p>Accept an example as part of the explanation</p> <p>Do not accept: too anxious or not anxious enough (in question)</p> <p>Too angry/annoyed/aggressive/hyped up/panic attack = vague (unless applied to a practical example)</p>
	<p>(b)</p> <p><b>Two marks max – one mark for each explanation:</b></p> <p><b>Aggression</b></p> <ul style="list-style-type: none"> <li>- Being aggressive in certain sports can cause other players to retaliate/become aggressive in return</li> <li>- Can foul or hurt/harm opponent</li> <li>- Can result in poor technique and in turn result in injury</li> <li>- Can cause lack of control</li> </ul>	2	<p>Accept an example as part of the explanation.</p> <p>Do NOT accept 'cause injury' on its own</p> <p>Do NOT accept lack of/insufficient aggression</p>
	<p>(c)</p> <p><b>Two marks max – one mark for each explanation:</b></p> <p><b>Motivation</b></p> <ul style="list-style-type: none"> <li>- Poor motivation levels could result in a performer not committing themselves enough – when competing at a high level in contact sports this could cause them to become injured e.g. boxing</li> <li>- Over motivation/carried away (leads to over arousal) could result in too much commitment in competition and cause injury</li> </ul>	2	<p>Accept an example as part of the explanation.</p> <p>Do NOT accept lack of focus</p> <p>Poor motivation/over motivation on own = vague</p>

Question	Answer/Indicative content	Mark	Guidance
4	<p><b>Three marks from the following:</b></p> <ul style="list-style-type: none"> <li>- (Poor) stance/gait (e.g. bending your knees or hunching your shoulders when stood up)/round shoulder</li> <li>- Sitting positions (e.g. slumping/slouching on the sofa rather than sitting upright) / sleeping position</li> <li>- (General) physical defects (e.g. muscles weaken around an injured area) / muscular imbalance</li> <li>- Lack of exercise (e.g. lack of core muscle strength means less support; being overweight puts strain on posture)/overweight/obesity</li> <li>- Fatigue (e.g. tired muscles will be unable to support the skeleton properly)</li> <li>- Emotional factors (e.g. having low self-esteem/lack of confidence can influence posture)</li> <li>- Clothing/footwear (e.g. wearing shoes with high heels can affect posture)</li> <li>- Pelvic tilt</li> <li>- Kyphosis</li> <li>- Scoliosis</li> </ul>	3	<p>Candidate purely needs to list the answer – no description required.</p> <p>Lordosis, Kyphosis and Scoliosis can be a cause of poor posture as well as an effect as can often be congenital or idiopathic rather than caused by trauma/injury.</p>

Question		Answer/Indicative content	Mark	Guidance
5	(a)	<p><b>One mark for each explanation:</b></p> <p><b>Pulse raiser</b>            - Consists of exercises that (slowly) increase the heart rate / (steady) jog or run / increases body temperature</p>	1	Do not accept – raise your pulse/faster pulse Sprinting as part of pulse raiser = BOD Pump more blood = vague Gets body warm = vague (in question) Accept appropriate exercise
	(b)	<p><b>Mobility</b>            - Consists of exercises that take the joints through their full range of motion such as hip and arm circles/swings</p>	1	Increased flexibility = vague  Accept any appropriate exercise if described
	(c)	<p><b>Stretching</b>            - Lengthen muscles in preparation for exercise.            - Static, dynamic, ballistic, passive (stretches).</p>	1	Do not accept stretching on its own (in question) Loosen muscles = vague Examples such as 'arm stretch' = vague Increased flexibility = vague Accept any appropriate exercise if described
	(d)	<p><b>Skill rehearsal</b>            - Practising or rehearsing the actions used in the game / activity / common movement patterns (that might be used in the forthcoming exercise session so that muscle groups and joints are prepared).            - E.g. dribbling around cones in football</p>	1	Accept any appropriate exercise Preparing for a football match = vague
6		<p><b>One mark max for an example:</b>            - E.g. gymnastics routine</p> <p><b>Two marks max for the explanation:</b>            - Thinking through /visualising / imagining each element of the routine before performing it.            - Focussing / concentrating or ignoring any distractions such as the crowd and other performers.</p>	3	Do NOT accept name of sport e.g. football/skiing etc. Must refer to a visual/mental representation of skills or actions related to the activity.  Credit example if it occurs in the description if not awarded earlier.

Question	Answer/Indicative content	Mark	Guidance
7	<p><b>Four marks max from the following:</b></p> <ul style="list-style-type: none"> <li>- Size of group</li> <li>- Age of participants</li> <li>- Gender (mix) of participants</li> <li>- Experience of participants</li> <li>- Individual fitness levels</li> <li>- Any injuries/medical conditions participants may have</li> <li>- Type of activity involved / suitability as preparation for a particular activity/sport</li> <li>- Space available / environmental factors (e.g. weather/temperature if outdoors, available facilities)</li> <li>- Time available for the session</li> </ul>	4	
8	<p><b>One mark for example</b> from the following:</p> <ul style="list-style-type: none"> <li>- A pulse lowering exercise such as exercises which gradually lower the heart rate</li> <li>- Jogging</li> <li>- Stretching</li> </ul> <p><b>Two marks for explanation from the following or similar:</b></p> <ul style="list-style-type: none"> <li>- Helping the body's transition back to a resting state</li> <li>- <u>Gradually</u> lower heart rate</li> <li>- <u>Gradually</u> lower temperature</li> <li>- (Maintain) circulation of blood / oxygen</li> <li>- <u>Gradually</u> reduce breathing rate</li> <li>- Remove waste products / lactic acid</li> <li>- Reduce the risk of (muscle) soreness / stiffness</li> <li>- Aids recovery (by stretching muscles, i.e. lengthening and strengthening muscles for next work-out/use)</li> </ul>	<p>1</p> <p>2</p>	<p>Maximum of one mark for example</p> <p>Do NOT accept relax muscles/prevents injury</p> <p>Two marks for the explanation. The word 'gradually' must be present when the candidates mention the lowering of heart rate or temperature or breathing in your answer.</p>



Question	Answer/Indicative content	Mark	Guidance
9 (a)	<b>Two marks for identification of contact sport injuries:</b> <ul style="list-style-type: none"> <li>- Fractures</li> <li>- Concussion</li> <li>- Bruises/ contusions</li> <li>- Cuts/ abrasions</li> <li>- Dislocation</li> <li>- Sprains</li> <li>- Strains</li> </ul>	2	Pull a muscle = Vg
9 (b)	<b>Two marks for identification of Gymnastic injuries:</b> <ul style="list-style-type: none"> <li>- Soft tissue injuries</li> <li>- Sprains</li> <li>- Strains</li> <li>- Overuse injuries i.e.</li> <li>- Tendonitis</li> <li>- Shin splints</li> <li>- Cramp</li> <li>- Fractures</li> <li>- Concussion</li> <li>- Abrasions/cuts/bruises</li> </ul>	2	Pull a muscle = Vg

Question	Answer/Indicative content	Mark	Guidance
10	<p><b>One mark for one of the following:</b>  <b>Injury Type</b>  - Overuse injury  - Chronic injury  - Soft tissue injury</p> <p><b>One mark for one of the following:</b>  <b>Symptoms</b>  - Pain/soreness in the area where the tendon is e.g. elbow – repetitive swinging of tennis racket or golf club.  - Inflammation  - Swelling</p> <p><b>One mark for one of the following:</b>  <b>Treatment</b>  - Rest  - Ice pack  - Taping / bandaging  - Mobility exercises  - Ultrasound  - RICE  - Anti-inflammatory medicine</p>	<p>1</p> <p>1</p> <p>1</p>	<p>Maximum of 1 mark per section.</p>

Question	Answer/Indicative content	Mark	Guidance
11 (a)	<p><b>Two marks for explanation:</b></p> <ul style="list-style-type: none"> <li>- Caused as a result of sudden trauma/happens quickly</li> <li>- Results in immediate pain</li> <li>- Swelling can occur</li> <li>- Loss of function</li> </ul>	2	
11 (b)	<p><b>One mark for each example to a maximum of two:</b></p> <ul style="list-style-type: none"> <li>- Fractured leg due to a mistimed tackle</li> <li>- Concussion due to clash of heads when heading a football.</li> <li>- Cuts/ abrasions e.g. punch in boxing</li> <li>- Bruises/contusions e.g. from elbow in football</li> <li>- Sprains e.g. twisted ankle in hockey</li> <li>- Strain e.g. torn hamstring netball</li> <li>- Cramp e.g. loss of function due to intense muscle pain</li> </ul>	2	<p>Other correct examples should be credited. Those listed opposite are guidance. Must be a <u>description</u> rather than a single word answer</p>

Question	Answer/Indicative content	Mark	Guidance
12	<p><b>One mark for each injury. One mark for each correctly identifies cause.</b></p> <ul style="list-style-type: none"> <li>- <b>Shin splints or stress fracture</b></li> <li>- caused through overuse/too much running on hard surfaces/incorrect footwear</li> <li>- <b>Fractures</b></li> <li>- caused by falling</li> <li>- <b>Blisters</b></li> <li>- caused by ill-fitting footwear or clothing e.g. wearing a new pair of trainers to do a long run, without breaking them in gently first/letting your feet adapt to them/ overuse</li> <li>- <b>Cramp</b></li> <li>- caused by muscle contractions – lack of fluids / minerals in body or poor hydration</li> <li>- <b>Abrasions/cuts</b></li> <li>- caused by falling/tripping over</li> <li>- <b>Contusions/bruises</b></li> <li>- caused by falling/tripping over</li> <li>- <b>Tendonitis</b></li> <li>- caused by overuse</li> <li>- <b>Sprain</b></li> <li>- caused by going over on your ankle</li> <li>- <b>Strain</b></li> <li>- caused by not being fit or by too much at once/ no warm up</li> <li>- <b>Concussion</b></li> <li>- caused by e.g. banging head when colliding with an obstacle</li> </ul>	6	<p>Maximum of three marks for identified injuries.</p> <p>Maximum of three marks for correctly identifying the cause of each injury.</p> <p>Pulled muscle = Vg</p>

Question	Answer/Indicative content	Mark	Guidance
13	<p><b>One mark for each type described:</b></p> <p><b>Type 1</b> – insulin dependent or no insulin / occurs independently of the person’s lifestyle/usually is diagnosed early on in a person’s life/genetically determined</p> <ul style="list-style-type: none"> <li>- High blood sugar</li> </ul> <p><b>Type 2</b> – (usually starts as) non-insulin dependent or not enough insulin / usually occurs in later life with aging / can often occur due to a poor lifestyle or diet / in most cases it is preventable.</p> <ul style="list-style-type: none"> <li>- High blood sugar</li> </ul>	2	<p>Accept description only.</p> <p>Do not accept ‘type I’ and ‘type II’ on their own.</p> <p>Accept high blood sugar one mark only</p>
14	<p><b>Six marks – one mark for each identification, one mark for symptom and one mark for treatment.</b></p> <p><b>- Asthma:</b></p> <p><b>Symptoms</b> –Coughing/wheezing/shortness of breath/ tightness in the chest</p> <p><b>Treatment</b> – Reassurance/inhaler/contact the emergency services (if severe)</p> <p><b>- Epilepsy:</b></p> <p><b>Symptoms</b> –Seizures or fits/loss of memory/ loss of senses/ déjà vu/ stiffness/ smacking lips/ unable to respond/ rubbing hands/ sudden intense emotion</p> <p><b>Treatment</b> -Make room for the person to have their seizure without banging into things</p> <ul style="list-style-type: none"> <li>- Keep warm and allow to sleep afterwards</li> <li>- Get emergency help if required</li> <li>- Put an emergency plan in place prior to exercise if it is known that they may have a seizure/epilepsy</li> <li>- anti-epilepsy drugs/ prescribed medicine</li> </ul>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>Accept as medical conditions (related to the question):</p> <p>Osgood-Schlatters</p> <p>Sever’s (Disease).</p>

Question	Answer/Indicative content	Mark	Guidance
15	<p><b>8 marks max for:</b> <b>Levels of response:</b></p> <p>0 = nil response or response not worthy of credit</p> <p><b>MB1 (1 – 3 marks)</b> The response shows a limited understanding of the different areas that make up an emergency action plan or the reason for and benefits of having an action plan in place such as it being there as a prevention and a solution to an emergency situation occurring in a sports environment. Candidates provide simple descriptions of a few points from the indicative content. No attempt is made at evaluation and there may be some irrelevant material in the answer. There is little or no use of technical vocabulary and sentences have limited coherence and structure. Errors in grammar, punctuation and spelling may be noticeable and intrusive.</p> <p><b>MB2 (4 – 6 marks)</b> The response shows an understanding of the different areas that make up an emergency action plan or the reason for, and benefits of, having an action plan in place. Some attempt at evaluation is made, which may include the use of one or more of the developed points in order to show understanding of the three different areas included in an action plan with their benefits and reason for inclusion in such a safety plan prior to an exercise session being undertaken. There is some use of technical vocabulary and sentences for the most part are relevant and are coherent. There are occasional errors in grammar, punctuation and spelling.</p> <p><b>MB3 (7 - 8 marks)</b> The response shows a detailed understanding with detailed discussion. Candidates make many points from the indicative content, several of which may be developed,</p>	8	<p><i>In differentiating between levels look for:</i></p> <p><i>MB1: Simple description rather than explanation</i> <i>Simple description of some/all areas of the action plan</i> <i>Some inaccuracies</i> <i>Little reference to sport</i> <i>Basic reasons for and/or benefits of action plan</i></p> <p><i>MB2: One or more developed points</i> <i>Some explanation of all the areas of the action plan</i> <i>Few or no inaccuracies</i> <i>Some reference to sport</i> <i>Some reference to reasons for and benefits of action plan</i></p>

Question	Answer/Indicative content	Mark	Guidance
	<p>leading to an evaluation being clearly made. The answer is well structured and uses appropriate terminology and technical vocabulary. There are few if any errors in grammar, punctuation and spelling. A higher level of response has been provided in order for this band of points to be allocated and all three areas from the content below are covered - emergency personnel, emergency communication, emergency equipment.</p> <p><b>Indicative content:</b></p> <p><b>Emergency Action Plan:</b></p> <ul style="list-style-type: none"> <li>- <b>Emergency personnel</b> – details are provided as to who the key personnel on-site are (first responder, first aider, coach) to contact in an emergency (if they are not present) and where/how to contact them.</li> <li>- <b>Emergency communication</b> – details are provided with relevant contact numbers for the emergency services and any on-site/specialist provision.</li> <li>- <b>Emergency equipment</b> – details of where first aid kits and other relevant materials may be for use in an emergency.</li> </ul> <p><b>Reasons and benefits:</b></p> <ul style="list-style-type: none"> <li>-The reason an EAP is required is firstly so that people participating in a sport know that they are going to be safe. It is also there so that people in charge know what to do in the event of an emergency – it has all been planned and practiced in advance in case of an emergency.</li> <li>-Benefits of having an EAP – reduces the risk of minor or more serious injuries occurring when someone partakes in sport. Minor issues can be addressed before they develop into something more major as people (both employees in a sports organisation or people doing sport there) know what to do in the event of a problem.</li> </ul>		<p><i>MB3: Points are developed / expanded in more than one area of the answer</i></p> <p><i>Good explanation of all the areas of the action plan</i></p> <p><i>No inaccuracies</i></p> <p><i>Frequent references to sport</i></p> <p><i>Detailed reference to and reasons for and benefits of action plan</i></p> <p><i>Very few QWC errors</i></p> <p><b><i>Indicate the level at the end of the response</i></b></p>

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