



## **Cambridge National**

## **Sport Science**

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

Level 1/Level 2

## **Mark Scheme for January 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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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These are the annotations, (including abbreviations), including those used in scoris, which are used when marking

| Annotation  | Meaning of annotation   |
|---|---|
|    | Blank Page – this annotation <b>must</b> be used on all <b>blank</b> pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response. |
|    | Tick – correct answer   |
|    | Cross – incorrect answer  |
| DEV   | Development of point (for use with levels question)   |
|    | Level 1 (for use with levels question)  |
|    | Level 2 (for use with levels question)  |
|    | Level 3 (for use with levels question)  |
|    | Benefit of doubt - but still tick   |
| K   | Knowledge mark (for use with levels question)   |
| VG  | Too vague   |
|  | Repeat  |
|  | Noted but no credit given / zero mark response  |
| EG  | A practical example given that is worth credit  |
| S   | Sub max reached   |

| Question |                     | Answer/Indicative content  | Mark | Guidance  |
|----------|---------------------|--|------|---|
| 1        | (a)                 | <b>One mark for:<br/>SALTAPS</b>   | 1    |   |
|          | (b)<br>i<br>&<br>ii | <b>Four marks from:</b><br>1. See<br>2. Did you see injury occur/what happened<br>3. Ask<br>4. Ask the player what happened/how they feel/<br>questions about the injury / where the pain is coming<br>from / if it hurts/are they in pain<br>5. Look<br>6. At injury / at injured limbs for obvious signs of injury /<br>compare to other limbs<br>7. Touch<br>8. the injured site /gently palpate to find source of<br>pain/feeling for tenderness<br>9. Active<br>10. Can the player move the limb (with or without<br>pain)/non-weight bearing movement<br>11. Passive<br>12. <b>Coach/physio/medic</b> moves the limb/joint to full<br>extent (note reaction)/taking movement further than<br>active movement or see if you can move the limb/joint<br>for the performer<br>13. Strength<br>14. Can they hold/apply their own weight or is the player<br>able to get up/provide resistance against injured<br>part/stand-up or can they stand-up following injury or<br>can they play on/carry on playing/walk on it. | 4    | Max of <b>two</b> marks for key words<br>Max of <b>two</b> marks for descriptions<br><br>One mark per correct word (odd numbers) and one per<br>correct meaning (even numbers).<br><br>Meaning must match the word for second mark.<br><br><b>If word incorrect then nil marks for meaning</b><br><br><i>Pt 1 See – what type of injury it is = vg</i><br><i>Pt1 See – if you can see a cut = vg</i><br><i>Pt1 See – look at injury = vg</i><br><br><i>Pt4 Ask - ask if they are ok? = Vg</i><br><i>Pt4 Ask – does it hurt? = BOD (1 mark)</i><br><br><i>Pt5 Look – is it a serious injury/how bad it looks = 1 mark</i><br><br><i>Pt 12 – must have sense of someone else moving the<br/>limb to gain a mark</i> |
| 2        |                     | <b>Three marks from:</b><br>1. (Emergency personnel) – first responder/first<br>aider/coach/doctor/medic/nurse/medical team<br>2. (Emergency communication) – telephone 999 /call<br>emergency numbers/emergency services  | 3    | <b>Mark first response only</b><br><i>Pt1 person in charge = Vg</i><br><i>Pt2 phone / phone someone = Vg</i><br><i>Pt2 ambulance (on its own) = Vg</i><br><i>Pt2 call ambulance / 999 = BOD (1 mark)</i><br><i>Pt3 first aid/ambulance = Vg</i>   |

| Question        |                               | Answer/Indicative content   | Mark      | Guidance  |            |               |          |                |                 |              |              |                 |                               |              |   |  |
|-----------------|-------------------------------|---|-----------|---|------------|---------------|----------|----------------|-----------------|--------------|--------------|-----------------|-------------------------------|--------------|---|--|
|                 |                               | 3. (Emergency equipment) – first aid kit / evacuation chair / wheelchair / stretcher / defibrillator / inhaler / bandages / ice pack / sling  |           | <b>Pt3 ambulance and stretcher = Vg (mark first response)</b>   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
| 3               | a                             | <b>False</b>  | 1         |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
|                 | b                             | <b>True</b>   | 1         |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
|                 | c                             | <b>False</b>  | 1         |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
| 4               |                               | <p><b>Two marks for two from:</b></p> <p>(Type 1 diabetes)</p> <p>1. The body (pancreas) cannot produce insulin or doesn't have any insulin (regardless of lifestyle/its genetic)</p> <p>Or</p> <p>2. It can only be controlled through taking (regular) insulin (injections)</p> <p>(Type 2 diabetes)</p> <p>1. Insulin is not always required / already has (some) insulin / has some insulin but not enough or only if the disease has progressed is insulin required.</p> <p>Or</p> <p>2. Can be <b>controlled</b> through diet and exercise/good Lifestyle</p> | 2         | <p><b>One mark max for type 1 and one mark max for type 2.</b></p> <p><b>Type 1 – being born with it/genetic = Vg</b></p> <p><b>Type 2 – caused by diet/obesity/poor lifestyle = Vg</b></p> |            |               |          |                |                 |              |              |                 |                               |              |   |  |
| 5               |                               | <table border="1"> <thead> <tr> <th>Condition</th> <th>Symptoms</th> <th>Treatments</th> </tr> </thead> <tbody> <tr> <td><b>Asthma</b></td> <td>Coughing</td> <td>Keep them Calm</td> </tr> <tr> <td><b>Diabetes</b></td> <td>Body shaking</td> <td>Sugary drink</td> </tr> <tr> <td><b>Epilepsy</b></td> <td>Lip Smacking/<br/>Body shaking</td> <td>Move objects</td> </tr> </tbody> </table>   | Condition | Symptoms  | Treatments | <b>Asthma</b> | Coughing | Keep them Calm | <b>Diabetes</b> | Body shaking | Sugary drink | <b>Epilepsy</b> | Lip Smacking/<br>Body shaking | Move objects | 6 | <p><b>Max 6 marks</b></p> <p>One mark per correct answer</p> <p>Accept body shaking for symptoms of diabetes <b>and</b> epilepsy</p> |
| Condition       | Symptoms                      | Treatments  |           |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
| <b>Asthma</b>   | Coughing                      | Keep them Calm  |           |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
| <b>Diabetes</b> | Body shaking                  | Sugary drink  |           |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |
| <b>Epilepsy</b> | Lip Smacking/<br>Body shaking | Move objects  |           |   |            |               |          |                |                 |              |              |                 |                               |              |   |  |

| Question |    | Answer/Indicative content   | Mark | Guidance  |
|----------|----|---|------|---|
| 6        |    | <p><b>Two marks for:</b></p> <p>1. (Epilepsy) Let them fit or don't hold/restrain them/ support or cushion the head / medication / recovery position <u>after fit</u></p> <p>2. (Asthma) Inhaler / (asthma) pump</p>  | 2    | <p><b>Pt 1 - Call 999 and give medication = BOD (1 mark)</b></p> <p><b>Do not accept:</b><br/> <b>Examples from Q5: move objects; keep them calm (for treatment) call 999 = Vg</b><br/> <b>(Epilepsy) - keep warm or move people or elevate head = Vg</b><br/> <b>(Asthma)- deep breaths/sit them down / give drink = Vg</b></p>                        |
| 7        | a. | <p><b>One mark for:</b><br/>           (Performance equipment) – hockey stick/ball/racquet/ / bat posts (football/rugby/hockey/netball)/puck / shot / discus / javelin or ice skates or trampoline or examples of gym equipment</p>   | 1    | <p><b>Mark first only response only</b><br/> <b>Accept other valid examples</b></p> <p><b>Do not accept any items of clothing/footwear for performance equipment (other than ice skates)</b><br/> <b>(Performance equipment) cones = Vg</b></p>   |
|          | b. | <p><b>One mark for:</b><br/>           (Protective equipment) - gum shield/goggles/helmet/scrum cap/shin pads/box/shoulder pads/gloves/post protectors/ knee pads(cricket/football/boxing)/cricket box/cup/chest guard/body armour/boots (football/hockey etc) /trainers / socks</p>  | 1    |   |
| 8        |    | <p><b>Two marks for:</b><br/>           (Performance equipment) – a piece of equipment that is needed to <b>play</b> a particular sport / activity<br/>           (Protective equipment) – a piece of equipment that you are required to wear/use to prevent injury or stops you getting hurt or keeps players safe or to reduce risk of injury</p> | 2    | <p>Do not accept protect or protection for protective equipment.<br/> <b>(Performance equipment) – Do not accept perform for performance equipment</b><br/> <b>- Helps you perform or helps you perform better = Vg</b><br/> <b>What you need to do the activity = BOD (1 mark)</b><br/> <b>Objects played with/used in the game = BOD (1 mark)</b></p> |

| Question | Answer/Indicative content  | Mark | Guidance  |
|----------|--|------|---|
| 9        | <p><b>Six marks from:</b></p> <ol style="list-style-type: none"> <li>1. <u>Physical preparation</u></li> <li>2. Training/warm up/cool down/fitness levels/overuse/muscle imbalances</li> <li>3. <u>Individual variables</u></li> <li>4. Age – eg older then more injury prone /flexibility – eg the more flexible the less chance of injury /nutrition – eg having the right diet /sleep – eg getting enough sleep</li> <li>5. <u>Psychological factors</u></li> <li>6. Motivation – eg not pulling out of tackles or being over motivated/aggression – eg being too angry /arousal/anxiety levels – eg not making safe decisions or not being focussed</li> <li>7. <u>Injuries / poor posture / previous injuries / disability</u></li> <li>8. Any named injury or pelvic tilt/lordosis/kyphosis/round shoulder/scoliosis or can lead to low confidence /self esteem</li> <li>9. (Other) <u>Medical conditions</u></li> <li>10. Asthma / epilepsy / diabetes etc</li> </ol> | 6    | <p><b>One mark max for each of the 3 correctly identified intrinsic factors (odd numbers). (max 3)</b></p> <p><b>One mark max then for explanation of how each contributes to injury (even numbers). (max 3)</b></p> <p><b>Explanations (even numbers) – must have more than one word and be valid</b></p> <p><b><u>If intrinsic factor incorrectly labelled, then still mark an appropriate explanation</u></b></p>              |
| 10       | <p><b>Six marks from:</b></p> <ol style="list-style-type: none"> <li>1. <u>Type of activity</u></li> <li>2. contact sports present different injury risks from gymnastic activities or any suitable example</li> <li>3. <u>Coaching/supervision</u></li> <li>4. poor/incorrect coaching <b>techniques</b>/ineffective communication skills/not adhering to rules and regulations or can cause a performer to injure themselves through incorrect technique or playing the game in the wrong way/dangerously</li> </ol>   | 6    | <p><b>One mark for each of the 3 correctly identified extrinsic factors (odd numbers). (max 3)</b></p> <p><b>One mark then for explanation of how each contributes to injury (even numbers). (max 3)</b></p> <p><b><u>If extrinsic factor is incorrect then no marks for explanation</u></b></p> <p><b>Do not accept:</b><br/> <i>Physical preparation</i><br/> <i>Individual variables</i><br/> <i>Psychological factors</i></p> |

| Question |   | Answer/Indicative content   | Mark | Guidance  |
|----------|---|---|------|---|
|          |   | <p>5. <u>Environmental factors / weather/playing surface/ performance area and surrounding area or safety hazards or other players / participants</u></p> <p>6. (Extreme) cold could result in hypothermia or too hot and get heat exhaustion or rain could get in your eyes or playing surface could cause a performer to slip or trip over or other participants could bump into you or overcrowded playing area or ground slippery/hard or glass/litter</p>  |      | <p><b>Sports injuries relating to poor posture</b><br/> <b>Footwear/clothing / jewellery</b><br/> <b>Equipment</b></p> <p><b>Pt 3 Incorrect technique = vg</b><br/> <b>Coach (BOD pt 3) showing incorrect technique (pt4) = 2 marks</b><br/> <b>Pt4 poor coaching = Vg</b></p>  |
| 11       | a | Pulse raiser/raising  | 1    | <p><b>Mark first response only</b><br/> <b>Jogging = Vg</b></p>   |
|          | b | Skill rehearsal/practice (phase)  | 1    | <p><b>Mark first response only</b><br/> <b>Dribbling a ball = vg</b><br/> <b>Physical preparation = vg</b><br/> <b>Game rehearsing = vg (must be skill)</b></p>   |
|          | c | Mobility  | 1    | <p><b>Mark first response only</b><br/> <b>Stretching OR arm circling etc = vg</b><br/> <b>Mobilisation = BOD 1 mark</b></p>  |
|          | d | Stretching  | 1    | <p><b>Mark first response only</b><br/> <b>Lunges = vg</b></p>  |
| 12       |   | <p><b>Six marks from:</b></p> <p><u>Warming up</u> (5 marks sub-max)</p> <ol style="list-style-type: none"> <li>preparing the body <b>for physical activity/exercise</b> or ready <b>for the game</b></li> <li>Increase in temperature of the <u>muscles</u></li> <li>increase in flexibility / mobility / range of movement (of muscles and joints)</li> <li>increase in pliability (of ligaments and tendons)</li> <li>(psychologically) - heighten or control arousal levels or 'get in the zone' or settle nerves or increases confidence or motivates</li> </ol> | 6    | <p><b>Sub max 5 for warm-up and sub max 5 for cool-down</b></p> <p><b>Do not accept prevents pulling/straining muscles (prevent injury in question)</b></p> <p><b>Pt1 Gets you ready / gets you prepared = Vg</b><br/> <b>Pt 1 Perform skills correctly = Vg</b><br/> <b>Pt 2 Warms up muscles = Vg</b><br/> <b>Pt 3 Loosens muscles = Vg</b><br/> <b>Pt5 getting you in the right frame of mind or mental preparation = Vg</b></p> |



| Question |   | Answer/Indicative content   | Mark | Guidance   |
|----------|---|---|------|--|
|          |   | <p>6. improve concentration/increases focus</p> <p>7. Increase heart rate/breathing rate / oxygen/blood to the muscles <b><u>to offset/delays fatigue</u></b></p> <p><b>Cooling down</b> (5 marks sub max)</p> <p>1. <u>Gradually</u> returns body to resting state or gradually reduces heart rate/ breathing rate / temperature</p> <p>2. remove waste products / lactic acid</p> <p>3. reduce the risk of (muscle) soreness and stiffness or cramp</p> <p>4. aid recovery by stretching muscles, i.e. lengthening and strengthening muscles for next work-out or use</p> |      | <p><b>Increase concentration and arousal so ready for the activity = 3 marks</b></p> <p><b>Cool down Pt2 – prevents onset of lactic acid = Vg</b></p> <p><b>Cool down Pt 3 - Don't seize up = BOD (1 mark)</b></p> |
| 13       |   | <p><b>Two marks from:</b></p> <p>1. A coach would need to know if a performer has asthma / epilepsy / diabetes etc</p> <p>2. ... so that they know what to do / how to treat it /attend to injury or increases the safety of the player or so that EAP in place or so they don't get hurt/prevents injury or reduces risk of injury</p> <p>3. A coach can plan a session around the medical issues a performer may have or adapt / make the session easier or session suits the player's capability or so that the coach knows what they are capable of</p>                 | 2    | <p><b>Accept opposites E.g.: 'if the coach does not know then they might plan a dangerous activity'= pt3 (1 mark)</b></p> <p><b>So they are prepared = Vg (pt2)</b></p>  |
| 14       | a | <p><b>One mark for:</b></p> <p>Increased risk of dehydration if hot/humid/which can lead to a decrease in performance/fainting and collapse in extreme situations</p> <p>Or (Risk of) sunstroke/heat stroke/burning if hot/sunny</p> <p>Or (Risk of) accident/collision if sun gets in performers eyes due to participants running into one another or into an object such as a goal post.</p>  | 1    | <p><b>Heat (on its own with no description) = vg</b></p> <p><b>Blinds player = Vg</b></p>  |

| Question |   | Answer/Indicative content   | Mark | Guidance  |
|----------|---|---|------|---|
|          | b | <p><b>One mark for:</b></p> <p>(risk of) Performer cannot see clearly due to fog<br/>Or Collisions / participants running into one another or running into an object such as a goal post.</p>   | 1    |   |
|          | c | <p><b>One mark for:</b></p> <p>Could slip / fall over or vision blurred / restricted or can't see properly</p>  | 1    |   |
| 15       |   | <p><b>Levels of response:</b></p> <p>0 = nil response or response not worthy of credit</p> <p><b>MB1 (1 – 3 marks)</b><br/>The response shows a limited understanding of the differences between acute and chronic injuries. Limited understanding shown of the symptoms and responses. Candidates provide simple bullet points and limited 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><br/>The response shows an understanding of the difference between acute and chronic injuries. 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 types, symptoms and treatments for acute and chronic injuries. 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> | 8    | <p><b>In differentiating between levels look for:</b></p> <p><b>MB1:</b> -Simple description rather than explanation</p> <ul style="list-style-type: none"> <li>- Few examples or only example/s of acute or chronic or confused examples</li> <li>- Very few causes or causes only for acute or chronic</li> <li>- Treatments limited or for only one type of injury or treatments inaccurate/confused</li> <li>- Many QWC errors with some lack of sense</li> </ul> <p><b>MB2:</b> - One or more developed points with some explanation</p> <ul style="list-style-type: none"> <li>- Several examples of acute and chronic</li> <li>- Several causes for acute and chronic</li> <li>- Treatments described for acute and chronic</li> <li>- Few QWC errors</li> </ul> <p><b>MB3:</b> - Points are developed / expanded in more than one area of the answer with clear explanations</p> <ul style="list-style-type: none"> <li>- Several developed examples of acute <b>and</b> chronic</li> <li>- Several developed explanations of causes (at least one for each) for both acute and chronic</li> <li>- Treatments (at least one for each) explained well for both acute and chronic</li> <li>- Very few QWC errors</li> </ul> |

| Question | Answer/Indicative content  | Mark | Guidance  |
|----------|--|------|---|
|          | <p><b>MB3 (7 - 8 marks)</b><br/>           The response shows a detailed understanding with detailed discussion. Candidates make many points from the indicative content, several of which may be developed, 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.</p> <p><b>Indicative Content</b><br/> <b><u>Acute injuries</u></b></p> <ol style="list-style-type: none"> <li>1. Caused as a result of a sudden/instant trauma to the body/injury happens straight away</li> <li>2. Eg - hard rugby tackle or being hit by a ball or piece of equipment or performer or collisions</li> <li>3. Results in immediate pain</li> <li>4. Results in swelling with a loss of function</li> <li>5. <u>Types</u> include - soft tissue injuries (sprains/strains)</li> <li>6. Fractures (open or closed)</li> <li>7. Eg Open fracture has bone piercing the skin / closed fracture within the skin</li> <li>8. Concussion</li> <li>9. Eg – clash of heads in football</li> <li>10. Cuts – abrasions/grazes</li> <li>11. Eg falling over on hard surface</li> <li>12. Contusions - bruises</li> <li>13. Eg colliding with opponent</li> <li>14. Cramp</li> <li>15. Blisters (<i>acute-burn or chronic-rubbing/overuse</i>)</li> </ol> |      | <p>Annotations:</p> <p>K = Identification of acute / chronic injury</p> <p>K = Identification of causes for each</p> <p>K = Identification of treatments for each</p> <p>DEV = Development of any K points</p> <p>EG = Practical examples of how injuries are caused</p> <p><b><i>Indicate the level at the end of the response</i></b></p> |

| Question | Answer/Indicative content  | Mark | Guidance |
|----------|--|------|----------|
|          | <p><b><u>Chronic injuries</u></b></p> <ol style="list-style-type: none"> <li>1. Also known as overuse injuries</li> <li>2. Eg running for long periods of time</li> <li>3. Result of continuous stress on an area</li> <li>4. EG hitting a tennis ball again and again</li> <li>5. Tend to develop gradually over a period of time</li> <li>6. <u>Types</u> include – (Achilles) tendonitis/shin splints/tennis elbow/golfer’s elbow/jumpers knee</li> <li>7. Injuries related to children - severs disease, Osgood Schlatter’s disease</li> <li>8. Injuries related to poor posture – round shoulders etc</li> </ol> <p><b><u>Responding to the injuries</u></b></p> <ol style="list-style-type: none"> <li>1. SALTAPS on-field assessment routine (See, Ask, Look, Touch, Active, Passive, Strength)</li> <li>2. R.I.C.E. (Rest, Ice, Compress, Elevate)</li> <li>3. Stretching and massage</li> <li>4. Taping, bandaging, splints, slings, casts/pots</li> <li>5. Hot and cold treatments (e.g. heat pack, freeze spray)</li> <li>6. Painkillers</li> <li>7. Surgery</li> </ol> |      |          |

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