

Cambridge National

Sport Science

R041/01: Reducing the risk of sports injuries, written

Level 1/Level 2

Mark Scheme for January 2022

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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 2022

1. Annotations in RM3

The following annotations are available:

✓	= Correct response
✗	= Incorrect response
BOD	= Benefit of doubt
BP	= Blank Page
IRRL	= Irrelevant
REP	= Repetition
TV	= Vague
KU	= Knowledge and understanding
DEV	= Development of point
EG	= Examples
S	= Sub-max
L1	= Level 1
L2	= Level 2
L3	= Level 3
SEEN	= used for NR (no responses)

Highlighting is also available to highlight any particular points on the script.

[The following questions should be annotated with ticks to show where marks have been awarded in the body of the text question 1-14]

2. 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)	<p>One mark for:</p> <p>Caused as a result of <u>sudden</u> trauma / impact (to the body) / an injury that results in <u>immediate</u> pain or swelling or loss of function</p>	[1]	<p>One mark for correct description</p> <p>Accept equivalents such as an injury that happens quickly / straight away = BOD</p> <p>DNA: Injury that has a recovery of less than 12 weeks / short-term injury / only just occurred = TV</p>
	(b)	<p>One mark for:</p> <p>Example: (open / closed) fracture / sprain / strain / concussion / contusion / bruise / abrasion / cut / graze</p>	[1]	<p>One mark for correct example of an acute injury</p> <p>Accept other acute injuries eg laceration / dislocation = 1 mark</p> <p>Pulled muscle / broken bones or limbs = BOD</p> <p>Break / broken = TV</p> <p>Blister (due to heat source) = BOD</p> <p>Cramp = BOD (sudden & involuntary muscle contraction with immediate pain)</p>
2	(a)	<p>One mark for:</p> <p>Overuse injury / an injury as a result of continued stress or repetitive movement or action / develops gradually / over a period of time</p>	[1]	<p>One mark for correct description</p> <p>DNA: Affect players for some time / long recovery / long-term = TV</p>
	(b)	<p>One mark for:</p> <p>Example: (Achilles or patella) tendonitis / tennis elbow or golfer's elbow / runner's knee / shin splints / <u>stress</u> fracture / blisters / cramp</p>	[1]	<p>One mark for correct example of a chronic injury</p> <p>Accept:</p> <ul style="list-style-type: none"> • Examples of other chronic injuries eg dancers hip / swimmers or bowlers shoulder = 1 mark • Osgood-Schlatter's / Severs disease = BOD

3.		<p>Three marks for:</p> <ol style="list-style-type: none"> 1. (Emergency) Personnel 2. (Emergency) Communication 3. (Emergency) Equipment 	[3]	<p>Accept responses in any order</p> <p>DNA: Emergency person = TV</p> <p>Examples of EAP such as call 999 / Emergency Services = TV for communication / first aider = TV for personnel / stretcher = TV for equipment</p>
4.		<p>Five marks for:</p> <ol style="list-style-type: none"> 1. Wheezing 2. Tightness in the chest 3. An inhaler 4. Reassurance 5. Call the emergency services 	[5]	<p>Wheezing / tight chest in any order for first two responses</p> <p>An inhaler / reassurance in any order for third and fourth responses</p> <p>DNA: other possible correct responses that were not in the box such as coughing / breathing difficulties (question states using the words or phrases in the box)</p>
5.		<p>One mark for:</p> <p>False</p>	[1]	
6.		<p>Three marks for (One mark sub-max for symptom and two marks sub-max for treatments)</p> <p>One mark for:</p> <p><u>Symptom:</u></p> <p>Confusion / dizziness / staring into space or zoning out / loss of consciousness or unresponsive / feeling of déjà vu / lip smacking / drooling or frothing or foaming at the mouth / having a strange taste / clenching teeth / sudden rapid eye movements or eyes rolling to back of head or blurred vision / slurred speech / biting tongue / pins and needles / numbness / tingling / stiffness / making random noises / losing control of bowels or bladder / memory loss</p>	[3]	<p>Mark first symptom given</p> <p>Accept other relevant symptoms</p> <p>DNA: Fits / seizures = REP or equivalent such as erratic movements / shaking / jerking / twitching / spasms = TV</p> <p>Fainting = TV</p>

		<p>Two marks for:</p> <p><u>Response:</u></p> <ol style="list-style-type: none"> 1. Help the person to lie or sit down 2. Support / cushion their head or use clothing under the head 3. Clear the area or make area safe / remove (harmful) objects from around them 4. Let them fit / do not restrain 5. Note timings of start and end of seizure 6. Call the emergency services or 999 7. Place in recovery position <u>after</u> the fit has finished 8. Stay with the person until recovery is complete / be calm / reassuring 9. Refer to emergency care plan 	<p>Mark first two points only for response</p> <p>'Make sure Ben is in a safe place to fit' = BOD</p> <p>DNA: Anti-epileptic drugs / AEDs = TV (question asks for how 'you' might respond).</p> <p>Put something under their head = TV Use something soft under their head = 1 (Point 2)</p> <p>Elevate head to avoid it hitting the floor = TV</p>
7.		<p>Two marks for:</p> <ol style="list-style-type: none"> 1. High blood sugar <u>because</u> no insulin in body or body unable to make enough insulin / insulin not working properly / or low blood sugar <u>because</u> too much insulin 2. Increased thirst / hunger as body losing lots of water 3. Frequent urination <u>because</u> of excess glucose building up / increased filtering by kidneys or drinking more water 4. Unintended weight loss <u>because</u> glucose cannot get to blood with low or no insulin 5. Depression / irritability <u>because</u> of exhaustion or feeling overwhelmed 6. Fatigue / weakness <u>because</u> cells are not receiving energy 7. Blurred vision <u>because</u> of high blood sugar levels 8. Thrush <u>because</u> of higher blood sugar levels 9. Slow healing cuts <u>because</u> of poor circulation 10. Fruity smelling breath <u>because</u> of higher glucose in saliva 11. Dizziness / confusion <u>because</u> of changes in blood sugar levels 12. Headaches <u>because</u> of high or low blood sugar levels 13. Nausea / being sick <u>because</u> of rising or falling blood sugar levels 	<p>[2]</p> <p>If responses describe symptoms with no explanation = BOD</p> <p>High / low sugar levels = TV</p> <p>Accept other relevant explanations linked to symptoms.</p> <p>Feeling faint = BOD Point 11</p>

8	(a)		Three marks for: (i) Protective (ii) Performance (iii) Protective	[3]	
8	(b)	(i)	One mark for: Pads / helmet / box / (thigh / chest / head) guard / gloves / gumshield	[1]	Accept: Boots / spikes = BOD
	(b)	(ii)	One mark for: Bat / ball / stumps or wickets or bails	[1]	DNA: <ul style="list-style-type: none"> Slip cradle / rebound catching equipment / cones (game can be played without this) = TV or cricket sticks = TV Any items for clothing or footwear for performance such as spiked shoes / wicket keeping gloves = TV
9.			Two marks for (One mark sub-max for example and one mark sub-max for explanation): One mark for: <ol style="list-style-type: none"> Contact / combat activities (such as rugby / boxing) Can <u>cause</u> injury due to collisions or tackles Non-contact activities sports (such as dance / gymnastics) Can <u>cause</u> injury by falls or poor landings Dangerous activities (such as mountain biking / skiing) Can <u>cause</u> risk of injury due to extreme hazards Striking / throwing activities (such as cricket / javelin) Can <u>cause</u> injury through being hit High impact / jumping activities (such as crossfit / high jump) Can <u>cause</u> injury due to damage / stress on joints Repetitive activities (such as golf / running) Can <u>cause</u> overuse injuries 	[2]	One mark for example (odd numbers) and one mark for explanation (even numbers) BOD relevant causes if type of activity is TV (just named sports or activities) and explains that injury can be a greater / lesser chance eg Football can lead to injury by getting tackled (Point 2 in MS). Explanation must link with the type of activity such as a contact sport (1 mark) which can cause injury by players falling over (TV as response needs to link with tackles or equivalent) Accept: Other relevant explanations for different types of activity such as a high jumper can get injured through a poor landing In rugby a player may perform a tackle = TV (explanation) In rugby a player performing a tackle that causes an injury / cut / fracture etc = 1 mark (explanation) Accept opposites: A non-contact sport (1 mark) such as dance has <u>less</u> chance of injury due to no tackles with other players (1 mark)

10.		<p>Six marks for:</p> <ol style="list-style-type: none"> 1. Weather 2. (Cause): Heat can cause sunstroke or dehydration / cold or snow can cause hypothermia or frozen or hard or icy pitch / rain can cause a slippery pitch or affect vision / fog affects vision leading to collisions / being hit by lightning / wind may lead to debris striking a player 3. Playing surface / performance area / surrounding area. 4. (Cause): Pot holes or uneven or equipment left can cause trips or falls / a wet or slippery area can cause falls / objects or litter can cause trips / concrete courts give hard landings / uneven surface leads to fall / area too small can cause collisions / collide with advertising boards or fences or goalpost 5. Other participants / players / performers 6. (Cause): Aggressive acts or punching or hitting other performers / other people not playing by the rules or foul play / a performer could run into or collide with another player / too many other participants 	[6]	<p>One mark for identifying environmental factors (odd numbers)</p> <p>One mark for each suitable description of cause – must match the correct factor (even numbers)</p> <p>DNA: Examples that do not describe eg pot holes (on it's own) = TV</p> <p>If factor is too vague (an example of the factor) eg fog, a BOD mark can still be awarded for a relevant cause eg a player can't see and run into another player = 1 mark</p> <p>If factor incorrect or irrelevant then no marks can be awarded for factor or example.</p> <p>DNA: Floor / field / pitch = TV (examples)</p> <p>Surface / area = BOD Point 3</p>
-----	--	---	-----	---

<p>11</p>	<p>(a)</p>		<p>Three marks for:</p> <table border="1" data-bbox="365 225 1061 916"> <tr> <td data-bbox="365 225 566 464"> <p>Lordosis</p> </td> <td data-bbox="566 225 768 464"></td> <td data-bbox="768 225 1061 464"> <p>Where the spine twists and curves to the side.</p> </td> </tr> <tr> <td data-bbox="365 464 566 639"> <p>Kyphosis</p> </td> <td data-bbox="566 464 768 639"></td> <td data-bbox="768 464 1061 639"> <p>Abnormal curvature of the spine in the lower back.</p> </td> </tr> <tr> <td data-bbox="365 639 566 916"> <p>Scoliosis</p> </td> <td data-bbox="566 639 768 916"></td> <td data-bbox="768 639 1061 916"> <p>A curvature of the spine that causes the top of the back to appear more rounded than normal.</p> </td> </tr> </table>	<p>Lordosis</p>		<p>Where the spine twists and curves to the side.</p>	<p>Kyphosis</p>		<p>Abnormal curvature of the spine in the lower back.</p>	<p>Scoliosis</p>		<p>A curvature of the spine that causes the top of the back to appear more rounded than normal.</p>	<p>[3]</p>	<p>One mark for each correctly linked injury to description.</p> <p>DNA: If more than one line is used to link more than one description = TV</p>
<p>Lordosis</p>		<p>Where the spine twists and curves to the side.</p>												
<p>Kyphosis</p>		<p>Abnormal curvature of the spine in the lower back.</p>												
<p>Scoliosis</p>		<p>A curvature of the spine that causes the top of the back to appear more rounded than normal.</p>												
<p>11</p>	<p>(b)</p>	<p>(i)</p>	<p>One mark for:</p> <p>Weaker muscles or back / back or neck or shoulder pain or aches / increase tiredness or fatigue / round shoulder / kyphosis / lordosis / pelvic tilt / poor stance or gait / poor sitting position / poor technique / poor circulation / headaches</p>	<p>[1]</p>	<p>DNA:</p> <ul style="list-style-type: none"> • Scoliosis = TV • Hunched back = TV • Issues with spine / back = TV (issues in question) • Pain on its own = TV 									

11	(b)	(ii)	<p>One mark for:</p> <p>Weaker muscles or back / back or neck or shoulder pain or aches / increase tiredness or fatigue / round shoulder / kyphosis / lordosis / pelvic tilt / poor stance or gait / poor sitting position / poor technique / poor circulation / headaches</p>	[1]	<p>DNA:</p> <ul style="list-style-type: none"> • Scoliosis = TV • Hunched back = TV • Issues with spine / back = TV (issues in question) • Pain on its own = TV 												
12.			<p>Four marks for:</p> <p>a) True b) True c) False d) False</p>	[4]	One mark for each correct answer												
13.			<p>Ten marks for: (Five marks sub-max for each component and five marks sub-max for each correct example)</p> <table border="1" data-bbox="340 644 1137 1401"> <thead> <tr> <th data-bbox="340 644 741 683">Component</th> <th data-bbox="741 644 1137 683">Example</th> </tr> </thead> <tbody> <tr> <td data-bbox="340 683 741 783">1. Pulse Raiser</td> <td data-bbox="741 683 1137 783">2. Jogging / cycling / skipping</td> </tr> <tr> <td data-bbox="340 783 741 922">3. Stretching</td> <td data-bbox="741 783 1137 922">4. Hamstring / quadriceps (static) / high knees / lunges / heel flicks (dynamic)</td> </tr> <tr> <td data-bbox="340 922 741 1023">5. Mobility</td> <td data-bbox="741 922 1137 1023">6. Arm swings / hip circles / open or closing the gate / ankle or shoulder rotations</td> </tr> <tr> <td data-bbox="340 1023 741 1230">7. Dynamic Movement</td> <td data-bbox="741 1023 1137 1230">8. Running with change of speed <u>and</u> direction / shuttle runs / zig zag running / <u>agility</u> ladder running / running in and out of cones</td> </tr> <tr> <td data-bbox="340 1230 741 1401">9. Skill rehearsal / practice</td> <td data-bbox="741 1230 1137 1401">10. Dribbling / passing / shooting / tackling / set plays / pivoting / catching / intercepting / footwork</td> </tr> </tbody> </table>	Component	Example	1. Pulse Raiser	2. Jogging / cycling / skipping	3. Stretching	4. Hamstring / quadriceps (static) / high knees / lunges / heel flicks (dynamic)	5. Mobility	6. Arm swings / hip circles / open or closing the gate / ankle or shoulder rotations	7. Dynamic Movement	8. Running with change of speed <u>and</u> direction / shuttle runs / zig zag running / <u>agility</u> ladder running / running in and out of cones	9. Skill rehearsal / practice	10. Dribbling / passing / shooting / tackling / set plays / pivoting / catching / intercepting / footwork	[10]	<p>Accept components (odd numbers) in any order and the example (even numbers) must be linked to the appropriate component.</p> <p>Mark first response only for both component and example.</p> <p>No marks for example if component is incorrect. If components are TV (eg dynamic) but example is correct (<u>running</u> in and out of cones) = BOD</p> <p>Accept: Heart raiser = BOD (Point 1) and laps (Point 2) = BOD DNA: Dynamic / static / maintenance as example = TV</p> <p>Accept: open or closing gate for stretching or a description of the action eg bringing knee to chest = BOD Accept touching toes for example of stretching if response states keeping legs straight = BOD</p> <p>DNA: Mobility egs must show a ROM eg high knees = TV</p> <p>Accept: Dynamic exercise = BOD (Point 7)</p> <p>Accept: Sport specific activities = BOD (Point 9 Skill rehearsal component) Accept: Attacking / defending for skill rehearsal example = BOD for example (Point 10)</p>
Component	Example																
1. Pulse Raiser	2. Jogging / cycling / skipping																
3. Stretching	4. Hamstring / quadriceps (static) / high knees / lunges / heel flicks (dynamic)																
5. Mobility	6. Arm swings / hip circles / open or closing the gate / ankle or shoulder rotations																
7. Dynamic Movement	8. Running with change of speed <u>and</u> direction / shuttle runs / zig zag running / <u>agility</u> ladder running / running in and out of cones																
9. Skill rehearsal / practice	10. Dribbling / passing / shooting / tackling / set plays / pivoting / catching / intercepting / footwork																

14		Two marks for: <ol style="list-style-type: none">1. Size of the group2. Age of participants3. Experience / ability / skill level4. Fitness levels or components or physiological capability5. Medical / psychological conditions6. Skill level7. Previous / recurring injuries	[2]	Accept: One word responses such as age = BOD DNA: <ul style="list-style-type: none">• Gender• Facilities / equipment / area = TV Accept: Flexibility / strength etc as fitness components
----	--	--	------------	--

<p>15</p>	<p><u>Levels of response</u></p> <p>Level 3 (7-8 marks) A comprehensive response:</p> <ul style="list-style-type: none"> - 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>Level 2 (4-6 marks) A competent response:</p> <ul style="list-style-type: none"> - 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>Level 1 (1-3 marks) A basic response:</p> <ul style="list-style-type: none"> - shows limited knowledge and understanding. - makes some basic points which are rarely developed. - 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>0 = nil response or no response worthy of credit.</p>	<p>[8]</p>	<p>Level 3:</p> <ul style="list-style-type: none"> • At the top of this level types of injuries (4+), causes (4+) and treatment (4+) are linked and developed referring to both soft tissue and overuse injuries. • Development of a range of treatment methods other than RICE may be an indicator. • Very few QWC errors <p>Level 2:</p> <ul style="list-style-type: none"> • At the top of this level types of injuries (3+), causes (3+) and treatment (3+) are developed referring to both soft tissue and overuse injuries. Development of parts of RICE and other treatments may also be evident. • Some QWC errors <p>Level 1:</p> <ul style="list-style-type: none"> • At the top of this level (2+) injuries but with identification rather than description and some development of causes (2+) and/or treatment (2+) • Most responses are examples rather than descriptions of injuries, causes and treatment may be simple identification Sprain, twisted ankle and RICE • One mark for one named injury / cause or treatment • Many QWC errors <p>Always indicate the level at the end of the response.</p>
------------------	--	-------------------	---

	<p>Indicative content Candidate responses are likely to include: (relevant responses not listed should be acknowledged)</p> <p>Numbered points = knowledge / understanding Bullet points = likely to be development of knowledge EG – Causes of injury do not require specific sporting situations</p> <p>Soft tissue injuries:</p> <ol style="list-style-type: none"> 1. Injuries to muscles / tendons / ligaments / skin 2. Sprains <ul style="list-style-type: none"> • when ligaments are stretched / twisted / torn EG – a hockey player rolling their ankle / a football player during a tackle / gymnast having a poor landing 3. Strains: <ul style="list-style-type: none"> • muscle tissues / tendon or fibers are stretched / torn / pulled EG – a footballer overstretching when going for a tackle / a weightlifter trying to lift a weight that is too heavy or a sprinter not warming up properly <p>Credit other soft tissue injuries such as concussion (brain – soft tissue) / bruises / cuts and other relevant causes and treatment</p> <p>Overuse injuries:</p> <ol style="list-style-type: none"> 1. Caused by continuous stress to body part / chronic injuries 2. Develop gradually over time 3. (Achilles) tendonitis <ul style="list-style-type: none"> • pain / swelling / inflammation of tendon EG – continuous or long distance running 4. Tennis elbow <ul style="list-style-type: none"> • pain on outside of elbow / lateral epicondylitis EG – repeated practice of tennis shots such as serving or forehand 	<p>Treatment options:</p> <ol style="list-style-type: none"> 1a. R.I.C.E. 1b. Rest, Ice, Compress, Elevate <ul style="list-style-type: none"> • (Rest) – stop the activity / don't put your weight on it / use crutches (legs) or splints (arms) / prevents injury getting worse • (Ice / cold treatments) - Apply ice pack or freeze spray / administer ice every 15/20 mins every 2/3 hours / helps reduce pain or swelling • (Compress) / apply pressure or force or bandaging / support the injury / helps reduce pain or swelling • Elevate – raise injury above level of heart / place leg on chair / helps reduce pain or swelling 2. Stretching <ul style="list-style-type: none"> • Increase muscle flexibility / strength / performing series of stretches 4. Massage <ul style="list-style-type: none"> • Pressing / rubbing / manipulating muscles / connective tissue / helps relieve muscle tension or tightness / alleviates pain 5. Taping <ul style="list-style-type: none"> • Support the injury through elastic strapping / kinesiology tape can help circulation / can help protect from further injury / relieves pain / reduces swelling 6. Bandaging <ul style="list-style-type: none"> • Strap injury for support using tubigrip / used as compression / stabilises joints / reduces inflammation / relieves muscle spasms / reduces pain / stops bleeding / prevents infection 7. Splints <ul style="list-style-type: none"> • Protects the injury / helps provide rest / maintain position of injured limb / reduce pain / allow to heal in natural position / reduce chance of further injury 8. Slings <ul style="list-style-type: none"> • Supports the injury by keeping it upright / helps provide rest / protection for injury / secures joint in position / reduces pain or swelling / promotes faster healing 9. Heat treatments <ul style="list-style-type: none"> • Use heat packs or lamps or deep heat cream / promotes blood flow to the area / pain relief
--	---	---

	<p>5. Golfers elbow</p> <ul style="list-style-type: none"> • pain on the bony lump of inside elbow / medial epicondylitis <p>EG – continued swinging / hitting golf ball over a long period of time</p> <p>6. Shin splints</p> <ul style="list-style-type: none"> • pain in tibia (shin) / lower legs <p>EG – running long periods on hard surface / wearing poor footwear</p> <p>7. Osgood Schlatter’s</p> <ul style="list-style-type: none"> • painful lump on knee <p>EG – growth spurts</p> <p>8. Sever’s disease</p> <ul style="list-style-type: none"> • pain at the back of the heel <p>EG – growth spurts</p> <p>9. Cramp</p> <ul style="list-style-type: none"> • sudden & involuntary muscle contraction with immediate pain <p>EG – overstretching during a warm up</p>	<p>10. Action plan to respond to injuries in a sporting context eg emergency procedures / emergency action plans</p> <p>11a. SALTAPS</p> <p>11b. See, Ask, Look, Touch, Active, Passive, Strength</p> <ul style="list-style-type: none"> • on-field assessment routine • Credit DEV for any developments of SALTAPS such as ‘look at the injury for swelling) only once <p><u>Additional treatment:</u></p> <p>12. Use of painkillers</p> <p>13. Seek further medical assistance / physiotherapy if symptoms don’t subside</p> <p><u>Look for different DEV points for each named treatment.</u></p>
--	---	--

OCR (Oxford Cambridge and RSA Examinations)
The Triangle Building
Shaftesbury Road
Cambridge
CB2 8EA

OCR Customer Contact Centre

Education and Learning

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored



CAMBRIDGE
UNIVERSITY PRESS & ASSESSMENT