



Oxford Cambridge and RSA

Cambridge National

Sport Science

R041/01: Reducing the risk of sports injuries

Level 1/2 Cambridge National Certificate/Award

Mark Scheme for June 2022

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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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General advice to Assistant Examiners on the procedure to be used

YOU WILL BE REQUIRED TO MARK PRACTICE AND STANDARDISATION SCRIPTS BEFORE STARTING TO MARK LIVE SCRIPTS.

1. The schedule of dates for the marking of this paper is very important. It is vital that you meet these requirements. If you experience problems then you must contact your Team Leader (Supervisor) without delay.
2. An element of professional judgement is required in the marking of any written paper. Candidates often do not use the exact words which appear in the detailed sheets which follow. If you are in doubt about the validity of any answer then consult your Team Leader (Supervisor) by phone, the messaging system within scoris, or e-mail.
3. Correct answers to calculations always gain full credit, even if no working is shown (The “Show your working” instruction is to help candidates, who may then gain credit even if their final answer is not correct.)
4. Some questions may have a ‘Level of Response’ mark scheme. Any details about these will be in the Additional Guidance.
5. If an answer has been crossed out and no alternative answer has been written then ignore the crossed out answer.
6. In addition to the award of 0 marks there is a NR (No Response) option in scoris.

Award 0 marks

- if there is any attempt that earns no credit (including copying out the question or some crossed out working)

Award NR (No Response)

- if there is nothing written at all in the answer space
OR
- if there is any comment which does not in any way relate to the question being asked (eg ‘can’t do’, ‘don’t know’)
OR
- if there is any sort of mark which is not an attempt at the question (eg a dash, a question mark)

7. The **Abbreviations, annotations and conventions** used in the detailed Mark Scheme are listed in point 9.
8. **The Comments box** will be use by your PE to explain their marking of the practice scripts. Please refer to these comments when checking your practice scripts.

Any questions or comments you have for your Team Leader should be communicated by phone, via the scoris messaging system, or e-mail.

1. Annotations in RM3

The following annotations are available:

✓ = Correct response

✗ = Incorrect

response

BOD = Benefit of

doubt

BP = Blank

Page

IRRL = Irrelevant

REP = Repetition

VG = 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]

9. 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	Mark	Guidance
1	(a)	<p>Two marks for:</p> <p>(Acute) – abrasion / cut / graze / bruise or contusion / fracture / dislocation / concussion / sprain / strain / cramp</p> <p>(Chronic) – shin splints / (Achilles or patella) tendonitis / blister / runners knee / stress fracture / cramp</p> <p>Accept any other relevant answers.</p>	[2]	<p>Mark first response only.</p> <p>Do not accept: Blister as acute injury = VG (Question is based around marathon running)</p> <p>Tennis elbow or golfer's elbow = VG Osgood schlatter's / severs disease = VG Arthritis = VG (it is a chronic condition not an injury)</p> <p>Accept: Acute – soft tissue injury / pulled hamstring / twisted or rolled ankle / broken bones / limbs = BOD</p> <p>Accept: Cramp = acute (immediate pain) and chronic (long period of time)</p>
	(b)	<p>Two marks for:</p> <p>(Acute) – falling / tripping / slipping / contact OR collision with another runner</p> <p>(Chronic) – repetitive running / running long distances / overuse / repeated or continuous stress or movement / friction OR rubbing / friction of skin (blister)</p> <p>Accept any other relevant answers</p>	[2]	<p>Injuries to occur during a marathon</p> <p>Do not accept: Running on uneven or hard ground = VG Overtraining = VG Wrong footwear = VG Rubbing of bones as they run = VG</p> <p>Accept: Going over on ankle for acute = 1 Poor running technique for chronic = 1</p>
2		<p>Two marks for:</p> <p>(Injury to the player) – faulty / broken OR worn incorrectly / poorly fitting OR not secured properly / too small / large / cause rubbing / friction</p> <p>(Injury to other players) – contact with helmet in collision / being thrown / hit by / landed on OR tripping over it if left out / comes off / clashing or banging of <u>heads</u></p>	[2]	<p>Do not accept: (Injury to the player) - banging their head = VG (helmet is there to protect them from banging their head) Not wearing a helmet = VG</p> <p>Accept: Reference to helmet being broke or faulty eg sharp pieces / cracked = BOD</p> <p>Do not accept: (Other players) - running into them (on its own) = VG (no mention of head / helmet collision) Helmet can be an obstacle / get in the way = VG</p>

3	(a)	<p>Three marks for three of:</p> <ol style="list-style-type: none"> 1. Physical defects / limitations or disability or poor spinal curvature / genes or medical conditions causing kyphosis 2. Previous injuries 3. Lack of exercise 4. Weaker muscles / lack of (core) muscle strength or unable to support body weight 5. Being overweight / obese 6. Feeling fatigued / tired muscles / lack of sleep 7. <u>Low</u> emotional factors or having low self-esteem / lack of confidence / suffering from depression 8. Incorrect clothing / footwear or wearing shoes with high heels or poorly fitting trainers 9. Muscle imbalance 10. Incorrect coaching techniques 11. Poor gait / walking 12. Poor sleeping position <p>Accept any other relevant answers</p>	[3]	<p>Do not accept: one word responses such as scoliosis / depression / fatigue (on its own) = VG</p> <p>Do not accept: poor sitting / slouching and standing / stance (in question) = REP</p> <p>Accept: Spinal conditions that are described = they have scoliosis which is 'S' shaped spine = BOD Point 1</p> <p>Pregnancy if described with weaker (abdominal) muscles / additional strain / hard to support extra weight = BOD Point 5</p> <p>Responses that link and describe to other factors e.g. lordosis (on its own) = VG but lordosis causing depression = Point 8</p>
	(b)	<p>Three marks for three of:</p> <ol style="list-style-type: none"> 1. Poor balance / unbalanced or shoulders have moved forward / hunched so more chance of falling / tripping over 2. Over compensating / poor technique causing strain / stress 3. Weaker bones / muscles so more prone to breaks / fractures / strains (if contact made / fall over) 4. Lack of flexibility / movement so more prone to strains / pulling a muscle OR more likely to get hit <p>Accept any other relevant explanations</p>	[3]	<p>Look for explanation within response e.g. Unbalanced on its own = VG</p> <p>Do not accept: reference to pain</p> <p>Accept: Description of round shoulder followed with explanation e.g. Shoulders more forward so less movement of head / neck = 1</p> <p>Some explanations may come from within other points in the MS which can be credited if relevant OR hunched forward so less movement available = 1 OR poor technique causes the performer to fall = 1</p> <p>Some responses may use examples within explanation e.g. A gymnast may not have the full range of movement in somersault and land incorrectly = 1</p>

4		<p>One mark for:</p> <p>Maintenance stretching</p>	[1]	
5	(a)	<p>Six marks for:</p> <ol style="list-style-type: none"> 1. Gender 2. Males and females should not do contact sports against each other or males generally stronger than females or females generally more flexible than males 3. Age 4. Practice needs to be appropriate to the age of the participants or adults and children not together 5. Components of fitness 6. Poor flexibility may cause a performer to use poor technique when stretching 7. Sleep 8. Lack of sleep results in poor judgement / decision making / dangerous play or reduce focus / tiredness 9. Previous/ recurring injuries / disability 10. Coach is aware may reoccur if too much done in training / overused 11. Psychological (factors) / stress / anxiety / arousal / motivation / mental preparation 12. Acts of aggression e.g. reckless tackles or players feeling nervous may pull out of a tackle 13. (Individual) physical preparation 14. Coach aware who has not warmed up or cooled down or who has missed training sessions 15. Fitness levels / (physical / mental) health / posture / medical conditions / history 16. Unfit players may start to tire towards the end of training / not keep up with the game / know which players have asthma / diabetes / epilepsy 17. Behaviour 18. Not abiding by rules of the sport / deliberately choosing to use a two footed tackle in football 19. Experience / ability / knowledge 20. Aware of performers with limited knowledge of the rules / techniques or less intense activity for beginners 	[6]	<p>Three marks sub-max identification (odd numbers) Three marks sub-max description (even numbers)</p> <p>Do not accept: Nutrition / diet (in question) = REP Reference to younger / older = VG Point 4</p> <p>Accept: What sex you are = BOD Point 1</p> <p>How old you are = BOD Point 3</p> <p>Look for reference to children / adult / elderly or examples of ages for description / (Point 4)</p> <p>Look for responses that state coach is aware what the individual variable may cause e.g. previous injuries so they may not push them as hard = 2</p> <p>Examples as part of description e.g. children should not be lifting heavy weights or children should not be playing rugby against adults (Point 4)</p> <p>Examples of fitness components e.g. flexibility / strength / speed (Point 5)</p> <p>Examples of where a coach chooses not to let them perform if too tired (Point 8) / injured (Point 10)</p> <p>Accept opposites e.g. more intense activity for higher ability</p>

Question		Answer	Mark	Guidance
6		<p>Three marks for:</p> <ol style="list-style-type: none"> 1. Type of activity 2. Coaching / communication adhering to rules or regulations 3. Environment / weather / surface or floor / surrounding area / players / facilities 4. Equipment / clothing / footwear 5. Safety hazards / risk assessments / EAP 	[3]	<p>Do not accept: Examples of extrinsic factors of the same type: environment and weather = REP (Point 3) 1 mark only</p> <p>Rules and regulations = VG Point 5</p> <p>Accept: Examples of the extrinsic factor but only once of same factor e.g. (Environment) litter = BOD Point 3, sun = BOD Point 3</p>
7	(a)	<p>One mark for</p> <p>E = Elevation / elevate</p>	[1]	
	(b)	<p>Two marks for two of:</p> <ol style="list-style-type: none"> 1. <u>Ease</u> or relieve pain / spasms 2. <u>Reduce</u> swelling / inflammation 3. <u>Reduce</u> bleeding <u>to</u> injury or blood flow <u>to</u> injury / can help reduce size of bruise 4. Recover from injury quicker / aids recovery 	[2]	<p>Mark first two responses only.</p> <p>Do not accept: Cooling down injury = VG Relax muscles = VG Prevent / stops further injury or examples e.g. bruising = VG Prevents swelling / pain = VG</p>
	(c)	<p>One mark for:</p> <p>(Helps) prevent infection / keeps it clean</p>	[1]	<p>Mark first response only as question asks for another reason. Compress / apply pressure = REP</p> <p>Do not accept: Support injured area Accept: Stops / prevents infection = BOD</p>
8		<p>Two marks for two of:</p> <ol style="list-style-type: none"> 1. First aider 2. Physiotherapist / physio 3. First responder / paramedic / nurse / doctor / medic 4. Coach / referee / manager / players 5. Teacher / parent / carer 	[2]	<p>Do not accept: Ambulance / first aid = VG</p> <p>Accept: Reference to ambulance worker = BOD Point 6</p>

Question			Answer	Mark	Guidance
9	(a)	(i)	<p>Two marks for two of:</p> <p>X-Ray A: Closed / simple X-Ray B: Open / compound</p>	[2]	<p>Do not accept: Contradictions – X-ray B is a closed fracture as the bone is sticking out of the skin</p> <p>Do not accept: Can see the bone = VG Can see blood = VG</p>
		(ii)	<p>One mark for:</p> <p>The bone has pierced the skin OR bone sticking out in X-Ray B / open fracture OR the bone has not pierced the skin in X-Ray A / closed fracture.</p>	[1]	
	(b)		<p>Two marks for two of:</p> <p>Gymnastics – (poor) landing / impact on floor / collision with equipment / (awkward) falling / overuse</p> <p>Football – (awkward / mistimed) tackle / collision / contact sport / falling / tripped up / overuse</p>	[2]	<p>Do not accept: One word responses e.g. falling (on it's own) = VG</p> <p>Same responses for both e.g. gymnast falling from beam and falling over in a game of football = REP (1 mark only)</p> <p>Examples that use similar wording e.g. Colliding with another player in football and running into the springboard / equipment = REP of collisions (1 mark only)</p>
10			<p>One mark for:</p> <p>Strength</p>	[1]	

Question		Answer	Mark	Guidance
11	(a)	<p>Two marks for two of:</p> <p>Cut - skin is fully broken / (open) wound OR goes deeper into skin OR caused by skin being pierced by something sharp OR more blood loss (than graze)</p> <p>Graze - when only the top layer(s) of skin are scraped off OR caused by scraping of skin (surface) OR does not bleed / not as much blood loss (to a cut)</p>	[2]	<p>Do not accept: scratching of skin (on it's own) = VG</p> <p>Skin coming off / ripped off = VG</p>
	(b)	<p>Two marks for two of:</p> <p>Cut: Caused by a (two-footed) football tackle / being punched by a boxer / getting hit with a hockey stick / netball player falling onto the ground / skates of figure skater catching themselves or others</p> <p>Graze: A footballer <u>slide</u> tackling on astroturf or pitch / basketball player getting a <u>friction burn</u> from falling on the court / a gymnast falling off the beam and <u>scraping</u> their knee</p>	[2]	<p>Accept any other relevant answers but must be related to a sporting example</p> <p>Do not accept: Cut by ice skate = VG Grazed by falling = VG Sharp object on football field = VG Studs (on its own) = VG</p> <p>Graze: falling over and knee sliding across ground = VG (no sporting example) Accept: Reference to opponents / players / pitch / astro as sporting examples = BOD</p> <p>Skidding = VG</p>
12	(a)	<p>One mark for:</p> <p>False</p>	[1]	
	(b)	<p>One mark for:</p> <p>False</p>	[1]	
	(c)	<p>One mark for:</p> <p>False</p>	[1]	

	(d)	<p>Two marks for two of:</p> <ol style="list-style-type: none"> 1. Knowledge for self / others on what to do (if having a seizure) / individual symptoms or triggers 2. Records treatment / medication 3. Gives contact details 4. Gives advice / support on living with epilepsy / what they can and shouldn't do / people with epilepsy empowered to manage condition 5. Process to help decide the best way to meet the person's needs 6. Goal setting / action planning to help manage 7. Gain more independence 	[2]	<p>Accept: Know <u>when</u> to seek medical assistance = BOD Point 1</p> <p>Call parents / guardian / 999 (on its own) = VG</p> <p>Know how to treat individual = BOD Point 1</p> <p>If just a description of what to do e.g. put in recovery position / make area safe etc = VG</p>
13	(a)	<p>Four marks for four of:</p> <ol style="list-style-type: none"> 1. Pulse raiser 2. (Gentle / light) jogging / running / skipping / cycling 3. Mobility 4. Arm swings / hip circles / shoulder or ankle rotations / open or close the gate 5. Dynamic movement 6. Shuttle runs / zig zag running / running changing speed and direction 7. Skill rehearsal 8. Passing / shooting / dribbling / throwing / catching / control 	[4]	<p>Two marks sub-max: (Component) Two marks sub-max: (Example)</p> <p>Do not accept: Stretching (in question) = REP</p> <p>Accept other relevant skills for Point 8</p> <p>Accept: raising heart rate = BOD Point 1 or skill practice / skill drill = BOD Point 7</p> <p>If no mark for component then no credit can be awarded for example</p>
	(b)	<p>Two marks for two of:</p> <p>(Description): Pulse lowering (activity)</p> <p>Example: (Gentle or slow) jogging / running / skipping / cycling / walking</p>	[2]	<p>Do not accept: Stretching (in question) = REP</p> <p>Accept: (<u>gradually</u>) reduce heart rate = BOD</p> <p>If no mark for component then no credit can be awarded for example</p>

Question		Answer	Mark	Guidance
14	(a)	<p>Three marks for three of:</p> <ol style="list-style-type: none">1. Coughing2. Wheezing / whistling sound3. Shortness of breath / breathing difficulties / loss of breath / breathless / breathing heavier or faster4. Faster heartbeat / raised heart rate5. Drowsiness / confusion / dizziness6. Fatigue / tiredness / exhaustion7. Blue lips / fingers8. Fainting9. Pale / clammy skin / change of skin colour10. Panic	[3]	Do not accept: Tight chest (in question) / chest pain = REP

<p>15.</p>	<p><u>Levels of response</u></p> <p>Level 3 (7-8 marks) 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>Level 2 (4-6 marks) 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>Level 1 (1-3 marks) A basic response: - 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> <p>0 = nil response or no response worthy of credit.</p> <p><u>Indicative content</u> Candidate responses are likely to include: (relevant responses not listed should be acknowledged) Numbered points = knowledge / understanding Bullet points = likely to be development of knowledge EG = development of knowledge applied to sporting example</p>	<p>[8]</p>	<p>Differentiating between levels look for:</p> <p style="text-align: center;">MB3:</p> <ul style="list-style-type: none"> • At the top of this level most psychological (3+) benefits of warm up are developed with use of EG and physical benefits (3+) of cool down described • Good use of practical examples relating to contact sports • Very few QWC errors <p style="text-align: center;">MB2:</p> <ul style="list-style-type: none"> • At the top of this level some developed and EG points for psychological (2+) benefits of warm up and some description of physical benefits (2+) of cool down • There may be an imbalance of physical / psychological benefits at the bottom of this level but more than 2+ psychological benefits of warm up and / or physical benefits of a cool down <p style="text-align: center;">MB1:</p> <ul style="list-style-type: none"> • At the top of this level psychological (1+) benefits of warm up and / or sporting examples and physical benefits (1+) of cool down • Some responses may be based around physical benefits of a warm up • Simple identification rather than description and a lack of application of examples (not linked to contact sports) • One mark for identification of one psychological and/or physical benefit <p style="text-align: center;">Always indicate the level at the end of the response.</p>
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	<p>(Psychological benefits of a warm up)</p> <p>1. <u>Heighten or control arousal levels</u></p> <ul style="list-style-type: none"> • 'get in the zone' • settle nerves / lowers anxiety or stress • channel aggression <p>EG feel calm before the start of a rugby match</p> <p>2. <u>Improve concentration</u></p> <ul style="list-style-type: none"> • better focus / selective attention • reaction time improves / quicker • better decision making <p>EG a boxer able to dodge punches</p> <p>3. <u>Increase motivation</u></p> <ul style="list-style-type: none"> • raising level of determination • drive to succeed • achieving goals in game <p>EG A karate performer being committed to win their contest</p> <p>4. <u>Mental rehearsal / imagery</u></p> <ul style="list-style-type: none"> • being able to visualise • using mental preparation / imagery <p>EG the ice hockey player getting in a positive mindset before physical match</p> <p>5. <u>Increase confidence</u></p> <ul style="list-style-type: none"> • gaining self-belief they are going to perform <p>EG a football player believing they are going to perform without fear of injury</p>	<p>(Physical benefits of a cool down)</p> <p>1. <u>Helps the body's transition back to a resting state</u></p> <ul style="list-style-type: none"> • gradually lowers heart rate • gradually lowers blood pressure • gradually lowers body temperature • gradually lowers breathing rate <p>2. <u>Circulates blood and oxygen</u></p> <ul style="list-style-type: none"> • helps prevent dizziness / nausea / fainting <p>3. <u>(Speeds up) removal of waste products</u></p> <ul style="list-style-type: none"> • such as lactic acid <p>4. <u>Reduces the risk of injury or pain</u></p> <ul style="list-style-type: none"> • reduces muscle soreness or stiffness or aches or cramp • delayed onset of muscle soreness (DOMS) • reduce risk of damage to joints <p>5. <u>Aids recovery by stretching muscles</u></p> <ul style="list-style-type: none"> • lengthening and strengthening muscles for next work-out / training / practice session • improve flexibility / elasticity of muscles <p><u>Other:</u></p> <ul style="list-style-type: none"> • helps avoid blood pooling / increase venous return
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