

## Sample Assessment Material (SAM)

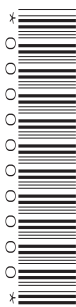
...day ... Month Year – Morning/Afternoon

Level 1/Level 2 Cambridge National in Sport Science

**R180:** Reducing the risk of sports injuries and dealing with common medical conditions

**Time allowed: 1 hour 15 minutes**

No extra materials are needed



Write clearly in black ink. **Do not write in the barcodes.**

Centre number

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Candidate number

--	--	--	--

First name(s) \_\_\_\_\_

Last name \_\_\_\_\_

### INSTRUCTIONS

- Use black ink.
- Write your answer to each question in the space provided. If students require additional answer space, lined paper may be available at the end of the answer booklet in a live question paper. Remember the question number(s) must be clearly shown.
- Answer **all** the questions.

### INFORMATION

- The total mark for this paper is **70**.
- The marks for each question are shown in brackets [ ].
- This document has **16** pages.

### ADVICE

- Read each question carefully before you start your answer.

## Section A

- 1 Circle the **two** words used in PRICE therapy.

Personnel	Protection
Recovery	Rehabilitation
Immobilisation	Injection
Compress	Cause
Equipment	Environment

[2]

- 2 Other than a fracture, identify **four** different types of acute injury that can occur at the knee.

- 1 .....
- 2 .....
- 3 .....
- 4 .....

[4]

- 3 Other than aggression, identify **two** psychological factors that can influence injury when playing sport.

- 1 .....
- 2 .....

[2]

**4 (a)** Identify **four** symptoms of asthma.

- 1 .....
- 2 .....
- 3 .....
- 4 .....

**[4]**

**(b)** State **two** different symptoms of epilepsy for each body part.

Eyes	1..... 2.....
Limbs	1..... 2.....
Mouth	1..... 2.....

**[6]**

- 5 Other than hydration and medical conditions, identify **four** intrinsic factors that can influence injury.

1.....  
2.....  
3.....  
4.....

[4]

- 6 SALTAPS is used to remember the on-field injury assessment routine.

State the words that the first and last 'S' in SALTAPS stand for.

First 'S' .....  
Last 'S' .....

[2]

- 7 Which **one** of the following is a common symptom of diabetes?

Tick (✓) the correct answer.

- (a) Body temperature of 38°C  
(b) Extreme tiredness  
(c) Urinating less frequently  
(d) Wheezing


[1]

## Section B

- 8** Sam is a newly qualified basketball coach. He is preparing for a coaching session in a sports hall.

**(a)** Complete the table to:

- Identify a practical example for each warm up component.
- Explain the main purpose of each practical example.

Warm up component	Practical Example	Explanation
Pulse raising		..... ..... ..... .....
Dynamic stretching		..... ..... ..... .....
Skill rehearsal		..... ..... ..... .....

**[6]**

- (b) At the end of the coaching session Sam needs to make sure the players complete a cool down.

State the **two** components of a cool down.

1.....

2.....

[2]

- (c) Describe **four** physiological benefits of a cool down.

1.....

.....

2.....

.....

3.....

.....

4.....

.....

[4]

- 9 Using a named sport or physical activity, state **one** piece of performance equipment and **one** piece of protective equipment.

Sport/physical activity: .....

Performance equipment: .....

Protective equipment: .....

[2]

- 10(a)** Using a practical example, describe how a referee can help prevent injury during contact sports.

.....

.....

.....

.....

**[2]**

- (b)** Using practical examples, describe **two** ways that coaching can cause injury in contact sports.

1. ....

.....

.....

.....

.....

2. ....

.....

.....

.....

.....

**[4]**

- 11** A runner is preparing for their first ever marathon. They plan to drink plenty of water during the race.

In the above scenario there are **two** individual variables. Identify the two variables and explain how each variable could influence the risk of injury to the runner during the marathon.

Individual variable 1: .....

Explanation:

.....

.....

.....

Individual variable 2: .....

Explanation:

.....

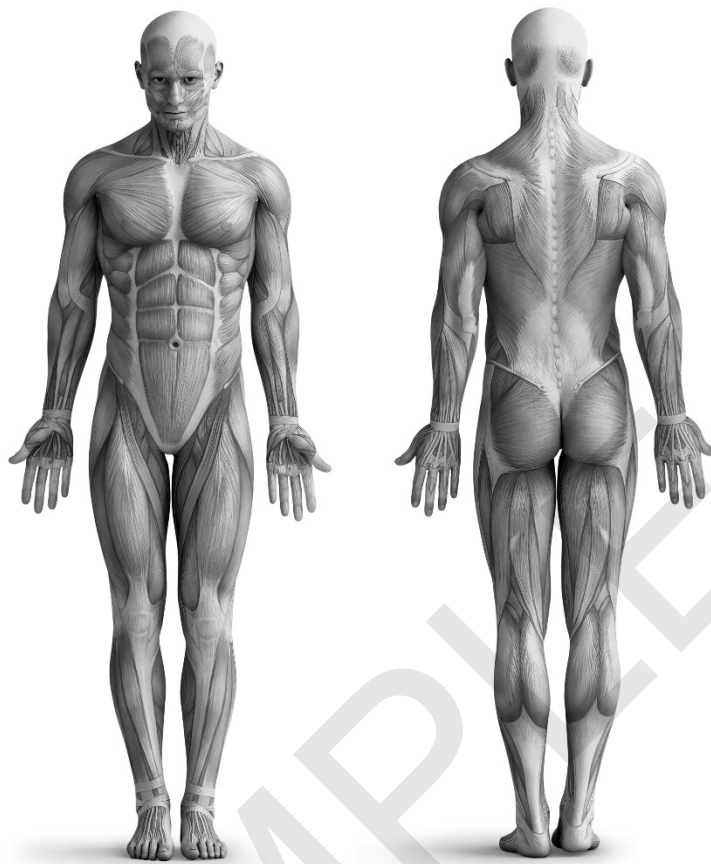
.....

.....

**[4]**



**12** The diagram below shows the front and back of the human body.



**Fig 1.**

**(a) (i)** Label the place that Achilles tendonitis would occur with the letter 'X'.

**[1]**

**(ii)** Other than pain, identify another symptom of Achilles tendonitis.

.....

**[1]**

**(b)** Using a practical example, describe how tendonitis can occur at the shoulder joint.

.....

.....

**[1]**

13

Risk assessment for indoor netball				
Risk		Severity risk rating		
		Low	Medium	High
A	Faulty heating of sports hall	x		
B	Lack of experience of staff / officials / coaches	x		
C	Large number of players on the court		x	
D	Obstructions - benches	x		

**Table 1** – Extract from a risk assessment for netball

(a) Using **Table 1**, state which risk is most likely to involve collisions with other players.

.....

[1]

(b) Identify a way weather conditions can cause injury when playing netball **outside**.

.....

.....

[1]

(c) Equipment and playing surfaces can also cause injury to netball players and should be included in the risk assessment.

(i) Identify **two** ways equipment can cause injury to netball players.

1. ....

.....

2. ....

.....

[2]

- (ii) Identify **two** control measures for the playing surface to reduce the risk of injury to players.

1. ....

.....

2. ....

.....

[2]

SAMPLE

- 14 Aggression in ice hockey is common because of the physical nature of the game.



Fig 2.

Use the photograph to help answer the following questions:

- (a) Identify **two** acts of aggression in ice hockey.

1.....

.....

2.....

.....

[2]

- (b) Other than the physical nature of the game, identify **two** reasons why ice hockey players may become aggressive.

1.....

.....

2.....

.....

[2]

- 15** Analyse how extrinsic factors can influence the risk of different types of fracture when participating in sporting activities.

In your response, you should use different practical examples of how fractures can occur.

SAMPLE

**[8]**

**END OF QUESTION PAPER**

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SAMPLE

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Sample Assessment Material (SAM)

**Cambridge National in Sport Science**

R180/01 Reducing the risk of sports injuries and dealing with common medical conditions

MARK SCHEME

**Duration: 1 hour 15 minutes**

**MAXIMUM MARK 70**

Version: 2.0  
Last updated: 14/07/21  
(FOR OFFICE USE ONLY)

**This document consists of 16 pages**

### Crossed Out Responses

If a student has crossed out a response and written a clear alternative response, then the crossed out response is not marked. If no alternative is given, examiners will give students the benefit of the doubt and mark the crossed out response if it is legible.

### Multiple Choice Question Responses

When a multiple choice question has only a single, correct response and a student gives two responses (even if one of these responses is correct), no mark will be awarded, as it is not possible to determine which was the first response selected.

### Contradictory Responses

When a student provides contradictory responses, no mark will be awarded, even if one of the answers is correct.

### Short Answer Questions (usually worth only **one mark per response**)

If a student needs to give a set number of short answer responses, but gives more, only the set number of responses will be marked. The response space will be marked from left to right on each line and then line by line until the required number of responses have been marked. The remaining responses will not be marked.

### Short Answer Questions (worth **two or more marks**)

If a student is required to provide a description of, say, three items or factors and four items or factors are provided, then marking will be similar to the above example (but downwards).

### Longer Answer Questions

If a student provides two (or more) responses to a medium or high tariff question which only needs a single (developed) response, and does not cross out the first response, the first response will be marked.

### Levels of response marking

- a. **To determine the level** – examiners will start at the highest level and work down until they reach the level that matches the answer
- b. **To determine the mark within the level**, they will consider the following:

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

Section A					
Question			Answer	Mark	Guidance
1			<b>Two marks for:</b>  1. Compress 2. Protection	2	
2			<b>Four marks for any four of:</b>  1. Cut / laceration 2. Graze / abrasion 3. Bruise / contusion 5. Blister 6. Sprain / (anterior or posterior) 7. Cruciate ligament or ACL or PCL / meniscal tears / collateral ligament tears or torn / twisted ligament 8. Strain 9. Dislocation 11. (Acute) bursitis	4	<b>Do not accept:</b> Fracture (in question) or any injuries not associated at the knee e.g concussion, pulled muscle / hamstring  <b>Do not accept:</b> Any chronic injuries e.g. patellar tendonitis or osteoarthritis  <b>Accept:</b> <ul style="list-style-type: none"><li>• Different grades of strain for one mark only</li><li>• Other types of <b>acute</b> injury that occur at the <b>knee</b> if named</li></ul>
3			<b>Two marks for any two of:</b>  1. Motivation 2. Arousal 3. Anxiety/stress 4. Confidence	2	

Question			Answer	Mark	Guidance						
4	(a)		<b>Four marks for four of:</b>  1. Wheezing / whistling noises 2. Tight chest / chest pains 3. Difficulty / heavy breathing or short of breath / breathless / breathing faster 4. Raised heart rate 5. Drowsiness / dizziness / lightheaded / confusion 6. Pale / clammy skin 7. Blue lips / fingers 8. Fainting	4	<b>Accept:</b> any other suitable symptom						
4	(b)		<b>Two marks sub-max for eyes:</b> <b>Two marks sub-max for arms and legs:</b> <b>Two marks sub-max for mouth:</b> <table><tr><td>Eyes</td><td>1. Blank staring 2. Fluttering / rapid blinking</td></tr><tr><td>Limbs</td><td>1. Shaking 2. Uncontrollable movements 3. Twitching 5. Stiffness</td></tr><tr><td>Mouth</td><td>1. Slurred speech / random noises 2. Unusual taste 3. Chewing / biting</td></tr></table>	Eyes	1. Blank staring 2. Fluttering / rapid blinking	Limbs	1. Shaking 2. Uncontrollable movements 3. Twitching 5. Stiffness	Mouth	1. Slurred speech / random noises 2. Unusual taste 3. Chewing / biting	6	<b>Accept:</b> any other suitable symptom that relates to correct body part
Eyes	1. Blank staring 2. Fluttering / rapid blinking										
Limbs	1. Shaking 2. Uncontrollable movements 3. Twitching 5. Stiffness										
Mouth	1. Slurred speech / random noises 2. Unusual taste 3. Chewing / biting										

Question			Answer	Mark	Guidance
5	(a)		<b>Four marks for four of:</b>  1. Gender 2. Age 3. Experience 4. Weight 5. Fitness levels 6. Technique / ability 7. Nutrition 8. Sleep 9. Previous / recurring injuries	4	<b>Do not accept:</b> Hydration and medical conditions (in the question)  <b>Accept:</b> Any named fitness components  Any named psychological trait
6			<b>Two marks for two of:</b>  1. (First 'S') – See 2. (Last 'S') - Strength	2	Responses must be in order
7			<b>(b)</b> Extreme tiredness	1	

## Section B

Question			Answer	Mark	Guidance												
8	(a)		<p><b>3 marks sub-max for valid examples (1 mark each)</b> <b>3 marks sub-max for valid explanations (1 mark each)</b></p> <table><tr><th>Component</th><th>Example</th><th>Explanation</th></tr><tr><td>Pulse raising</td><td>Jogging / running around basketball court</td><td>Increase blood / oxygen to working muscles to prepare for game</td></tr><tr><td>Dynamic stretching</td><td>Lunges / groin walk / high kicks</td><td>Aim is to lengthen or increase flexibility of muscles</td></tr><tr><td>Skill rehearsal</td><td>Dribbling / passing / shooting / pivoting</td><td>Using common movement patterns used in the sport / skill drills/ practice set pieces</td></tr></table>	Component	Example	Explanation	Pulse raising	Jogging / running around basketball court	Increase blood / oxygen to working muscles to prepare for game	Dynamic stretching	Lunges / groin walk / high kicks	Aim is to lengthen or increase flexibility of muscles	Skill rehearsal	Dribbling / passing / shooting / pivoting	Using common movement patterns used in the sport / skill drills/ practice set pieces	6	
Component	Example	Explanation															
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Dynamic stretching	Lunges / groin walk / high kicks	Aim is to lengthen or increase flexibility of muscles															
Skill rehearsal	Dribbling / passing / shooting / pivoting	Using common movement patterns used in the sport / skill drills/ practice set pieces															
8	(b)		<p><b>Two marks for two of:</b></p> <p>1. Pulse lowering</p> <p>2. Maintenance stretches / static stretches / Proprioceptive Neuromuscular Facilitation or PNF</p>	2	<b>Do not accept:</b> Any reference to examples as question asks for the actual components												
8	(c)		<p><b>1 mark each for any of the answers below (Max 4 marks):</b></p> <p>1. <u>Gradually</u> lowers heart rate</p> <p>2. <u>Gradually</u> lowers temperature</p> <p>3. Circulates blood and oxygen</p> <p>4. Helps prevent blood pooling</p> <p>5. <u>Gradually</u> reduces breathing rate</p> <p>6. Removes waste products / lactic acid</p> <p>7. Reduces risk of delayed onset of muscle soreness (DOMS)</p>	4													

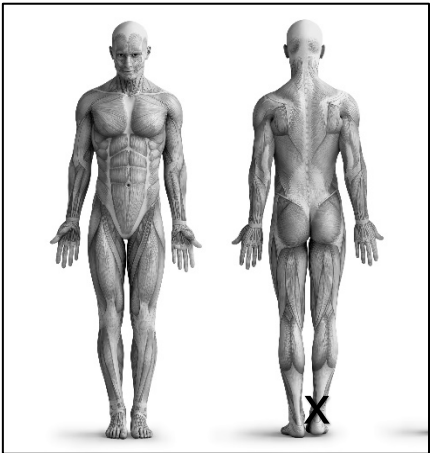
Question			Answer	Mark	Guidance
9			<p><b>Two marks sub-max for performance equipment</b>  <b>Two marks sub-max for protective equipment</b></p> <p><i>Examples of performance equipment</i></p> <ol style="list-style-type: none"> <li>1. Football</li> <li>2. Goalposts</li> <li>3. Hockey stick</li> <li>4. Cricket bat</li> </ol> <p><i>Examples of protective equipment</i></p> <ol style="list-style-type: none"> <li>1. Shin pads</li> <li>2. Helmet</li> <li>3. Gumshield</li> <li>4. Elbow or knee pads</li> </ol>	2	<p><b>Accept:</b> Any suitable performance / protective equipment relating to named sport or physical activity</p>

Question		Answer	Mark	Guidance												
10	(a)	<p><b>Two marks for two of:</b> One mark sub-max for how a referee can help prevent injury One mark sub-max for practical contact sport examples</p> <table><tr><th>How a referee can help prevent injury</th><th>Practical contact sports example</th></tr><tr><td>Good / correct refereeing / good knowledge of rules / adhering to rules or regulations</td><td>Giving warnings / deducting points if low punches in boxing</td></tr><tr><td>Effective / clear communication skills</td><td>Ensure rugby players are able to understand instructions during a scrum</td></tr><tr><td>Awareness of player welfare</td><td>Immediately stopping play in football so a player can receive treatment for a head injury</td></tr><tr><td>Observing clothing / footwear</td><td>Asking a football player to remove jewellery before a game</td></tr><tr><td>Responding to weather conditions</td><td>Calling the hockey game off if pitch is too icy</td></tr></table> <p>Example response:</p> <p>A ice hockey referee having good understanding of the rules (1) and punishing fouls by sending players to the sin bin (1) to help protect players from injury.</p>	How a referee can help prevent injury	Practical contact sports example	Good / correct refereeing / good knowledge of rules / adhering to rules or regulations	Giving warnings / deducting points if low punches in boxing	Effective / clear communication skills	Ensure rugby players are able to understand instructions during a scrum	Awareness of player welfare	Immediately stopping play in football so a player can receive treatment for a head injury	Observing clothing / footwear	Asking a football player to remove jewellery before a game	Responding to weather conditions	Calling the hockey game off if pitch is too icy	2	<p><b>Do not accept:</b> Responses that refer to the referee causing injury e.g. poor refereeing will cause injury (Question asks for responses that help prevent injury)</p> <p><b>Accept:</b> Responses that demonstrates basic terminology that links to contacts sports e.g players, tackling, hitting</p> <p>Responses may refer to specific contact sports and use specific terminology e.g Rugby – ensuring players are binding correctly in scrum, players are sent off for spear tackles.</p>
How a referee can help prevent injury	Practical contact sports example															
Good / correct refereeing / good knowledge of rules / adhering to rules or regulations	Giving warnings / deducting points if low punches in boxing															
Effective / clear communication skills	Ensure rugby players are able to understand instructions during a scrum															
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Observing clothing / footwear	Asking a football player to remove jewellery before a game															
Responding to weather conditions	Calling the hockey game off if pitch is too icy															



10	(b)	<p><b>Two marks sub-max for each example</b> One mark for each way coaching can cause injury One mark for a practical example</p> <table><tr><th>Ways a coach can cause injury</th><th>Practical example</th></tr><tr><td>Lack of knowledge of techniques / rules / regulations</td><td>A mixed martial arts coach teaching it is legal to headbutt</td></tr><tr><td>Limited experience / no official coaching badges</td><td>A wheelchair rugby coach having no official qualifications to lead sessions</td></tr><tr><td>Miscommunication of explanations / tactics</td><td>American football coach having poor communication when telling players about a strategy of play</td></tr><tr><td>Leaving players unsupervised during training</td><td>A water polo coach not observing practice drills taking place in the pool</td></tr><tr><td>Low ethical standards or behaviour / putting players at risk by getting them to participate when injured</td><td>A football coach asking a player to continue playing even though they have concussion</td></tr></table> <p>Example response:</p> <p>A boxing coach who is not qualified (1) may not teach boxers to defend themselves properly (1) and they may get badly injured as a result</p>	Ways a coach can cause injury	Practical example	Lack of knowledge of techniques / rules / regulations	A mixed martial arts coach teaching it is legal to headbutt	Limited experience / no official coaching badges	A wheelchair rugby coach having no official qualifications to lead sessions	Miscommunication of explanations / tactics	American football coach having poor communication when telling players about a strategy of play	Leaving players unsupervised during training	A water polo coach not observing practice drills taking place in the pool	Low ethical standards or behaviour / putting players at risk by getting them to participate when injured	A football coach asking a player to continue playing even though they have concussion	4
Ways a coach can cause injury	Practical example														
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Low ethical standards or behaviour / putting players at risk by getting them to participate when injured	A football coach asking a player to continue playing even though they have concussion														

Question			Answer	Mark	Guidance						
11			<b>Two marks sub-max for each example</b> One mark for each valid individual variable One mark for a valid applied explanation of that variable	4							
			<table><tr><th>Individual variable</th><th>Explanation</th></tr><tr><td>Experience (1)</td><td>Has never completed a marathon before so may not be fully prepared (1) / have poor decision making or race tactics such as not pacing themselves <u>and</u> therefore more chance of injury (1)</td></tr><tr><td>Hydration (1)</td><td>They will remain hydrated throughout the race or will not suffer dehydration (1) so focus / concentration will be maintained (1) so less chance of fatigue <u>and</u> less chance of injury (1)</td></tr></table>			Individual variable	Explanation	Experience (1)	Has never completed a marathon before so may not be fully prepared (1) / have poor decision making or race tactics such as not pacing themselves <u>and</u> therefore more chance of injury (1)	Hydration (1)	They will remain hydrated throughout the race or will not suffer dehydration (1) so focus / concentration will be maintained (1) so less chance of fatigue <u>and</u> less chance of injury (1)
			Individual variable			Explanation					
			Experience (1)			Has never completed a marathon before so may not be fully prepared (1) / have poor decision making or race tactics such as not pacing themselves <u>and</u> therefore more chance of injury (1)					
Hydration (1)	They will remain hydrated throughout the race or will not suffer dehydration (1) so focus / concentration will be maintained (1) so less chance of fatigue <u>and</u> less chance of injury (1)										

Question			Answer	Mark	Guidance
12	(a)	(i)	<b>One mark for:</b> 	1	
		(ii)	<b>One mark for one of:</b> 1. Swelling / lumps (at the back of the heel/tendon) 2. Thickening of the tendon 3. Limited range of motion when flexing the foot 4. The skin on the heel may feel hot to touch 5. A grating noise or creaking feeling (crepitus) when you move your ankle	1	<b>Do not accept:</b> Pain (in question); tenderness in the affected area.
12	(b)		<b>One mark for a valid description:</b> 1. <u>Continuous</u> or repetitive use of arm / shoulder when swimming or bowling in cricket or serving in tennis 2. Completing <u>many</u> passes in netball / basketball / rugby	1	<b>Do not accept:</b> Any responses that simply state a sport e.g. swimming and cricket or any sporting skills that do not involve the shoulder

Question			Answer	Mark	Guidance
13	(a)		C	1	
	(b)		<ul style="list-style-type: none"> <li>• Rain / frost / ice making court slippery</li> <li>• Fog / sun causing wing attack to collide into wing defence or netball post because they are unable to see.</li> </ul>	1	Answers must be applied and relevant to netball
	(c)	i	<b>One mark sub-max for each of:</b> <ul style="list-style-type: none"> <li>• Being hit in face with netball / netball bending fingers back when making a catch</li> <li>• Running / colliding into the netball post</li> <li>• Netball is deflated or using a basketball / frame of netball post faulty/ broken.</li> </ul>	2	Answers must be applied and relevant to netball
		ii	<b>One mark sub-max for each of:</b> <ul style="list-style-type: none"> <li>• Condition of court checked by umpires to repair any cracked concrete / holes or take the decision to move to another court</li> <li>• Ensure players are wearing gripped netball shoes/trainers</li> <li>• Speak to players about rules and remind them about falling onto the hard surface of netball court can cause injury.</li> </ul>	2	Answers must be applied and relevant to netball

Question			Answer	Mark	Guidance
14	(a)		<b>Two marks for:</b> 1. Drop stick and gloves to fight/brawl/ punch 2. Pushing/charging someone into the barrier or over onto the ice 3. Charging/elbow to get to the puck 4. Throwing a helmet/puck/stick 5. Kicking/stamping with your ice skate 6. Tripping/hooking/slashing with the ice hockey stick	2	<b>Accept:</b> Responses that demonstrate applied links to ice hockey (shoving – point 2, striking – point 3) as well as specific terminology (checking/slamming/stick swinging etc). Reference to specific ice hockey terms not required (e.g. shoving rather than charging would be accepted.)
14	(b)		<b>Two marks for:</b> 1. Retaliation (from previous tackles/collisions) 2. Team rivalry 3. Pressures to win (from team mates/coach) 4. Poor decisions from officials 5. Use of performance enhancing drugs 6. Losing/poor performance 7. Importance of event/final 8. Influence of crowd/spectators/media	2	<b>Do not accept:</b> Type of activity/nature of game (in question)  <b>Accept:</b> Responses that use basic ice hockey terminology (officials, final) as well as specific examples from ice hockey (NHL final) (though response does not need it)

**15.** Using practical examples, discuss how different types of fracture can occur when participating in sporting activities.

Your answer should include:

- Different practical examples of how fractures can occur
- How extrinsic factors can influence the risk of fractures.

Question	Answer	Mark	Guidance
15	<p><b><u>Levels of response</u></b></p> <p>All level descriptors describe the TOP of the level.</p> <p><b>Level 3 (7-8 marks)</b> A strong balanced discussion which demonstrates detailed explanation on the causes of different fractures. The discussion uses appropriate context about the influence (cause and reduced risk) of extrinsic factors on the risk of fractures. Knowledge points are developed and supported with a range of examples.</p> <p><b>Level 2 (4-6 marks)</b> A discussion which shows some explanation on the causes of different fractures. This may not be a discussion on how extrinsic fractures can be factors that can both cause and reduce the risk of fractures. Some use of appropriate context about the influence of extrinsic factors. Some knowledge points are developed and supported with examples.</p> <p><b>Level 1 (1-3 marks)</b> A basic discussion which shows limited explanation on the causes of different fractures. May use some appropriate context about extrinsic factors causing or reducing the risk. Knowledge points are not developed and/or supported with limited or no examples used.</p> <p><b>0 = nil response or no response worthy of credit.</b></p>	8	<p>Guidance:</p> <p><b><u>Level 3 (7-8 marks)</u></b> A <b>thorough</b> discussion which:          - shows <b>detailed</b> knowledge and understanding          - analyses the points made, showing logical reasoning throughout          - reaches a <b>justified</b> conclusion (where one is required)          - <b>consistently</b> uses appropriate terminology.</p> <p><b><u>Level 2 (4-6 marks)</u></b> A response <b>adequate</b> discussion:          - shows <b>sound</b> knowledge and understanding          - analyses the points made, may show some logical reasoning          - uses <b>some</b> appropriate terminology.</p> <p><b><u>Level 1 (1-3 marks)</u></b> A basic <b>discussion</b>:          - shows <b>limited</b> knowledge and understanding          - limited analysis of points made; may lack logic          - <b>limited</b> or no use of appropriate terminology.</p> <p><b>0 = nil response or no response worthy of credit.</b></p>

**Indicative content:** 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

Different practical examples may include:

1. **Physical contact with others** – tackle in football causing leg fracture
2. **Being hit with equipment** – struck with hockey stick causing wrist fracture
3. **Landing incorrectly** – poor landing after a vault in gymnastics
4. **Twisting** – rugby player getting foot stuck in ground when turning to run
5. **Repetitive movements** – long distance runner suffering stress fractures in foot
6. **Falling** – a skier losing control and falling on ice
7. **Collisions with equipment / crashes** – F1 driver crashing into the barrier

Different types of fracture :

1. **open fracture**
  - compound fracture
  - a complicated break where the bone has broken through the skin, or the initial injury has exposed the broken bone
2. **closed fracture**
  - simple fracture
  - bone has broken but has not pierced the skin
3. **stress / hairline fracture**
  - a fracture through the bone with little damage to the surrounding tissue
  - tiny cracks in the bone caused by overuse
4. Credit other examples of fracture not listed in the specification e.g., transverse, greenstick

Extrinsic factors:

1. Type of activity:

- Contact – e.g., being hit by opponent in boxing
- Gymnastic – e.g., poor landing / technique when vaulting
- Impact - how hard the contact is can cause more severe fracture, e.g – motor sport crashes can cause more severe fractures
- Collisions with other players / equipment, e.g – hockey player tackling another player or sliding into a goalpost

2. Incorrect or poor coaching / instructing / leading:

- e.g., Being told to do two footed tackle in football
- e.g., No supervision when trampolining
- e.g., Unable to hear instructions when rugby tackling is explained
- e.g., Little experience or knowledge when planning risk assessment in outdoor activities such as rock climbing

3. Environment:

- Weather / temperature conditions, e.g foggy and colliding with posts or not seeing pot holes on the running track
- Playing surface, e.g rugby player slipping over on ankle due to wet pitch or tennis player tripping and falling on litter on the court
- Human interaction:
  - Other participants, e.g. sparring partners in taekwondo or basketball players being too aggressive and pushing a player to the floor
  - Officials, e.g. a football referee not punishing dangerous fouls
  - Spectators, e.g. a hooligan running onto the pitch and punching a player

4. Equipment:

- Not wearing correct protective equipment, e.g not wearing helmet when cycling could cause fracture to skull / cranium or not wearing shin pads can cause fracture tibia / fibula in football
- Being hit by performance equipment, e.g being hit with cricket ball in arm could cause fracture to ulna / radius
- Incorrect footwear, e.g. wearing studs on AstroTurf when playing hockey may cause player to slip or wearing trainers in a rugby game could cause a fractured metatarsal if a player stamped on your foot

Additional:

1. Fractures are acute injuries
2. Caused by sudden trauma
3. Immediate impact and pain
4. Multiple fractures possible in some sports e.g double fracture of leg (tibia / ulna) in two places as a result of a dangerous two footed tackle in football.