Candidate:

Date:

RISK MANAGEMENT DIAGNOSTIC EXAM

Time limit = 90 min

This exam paper is intended for persons who are in control of an activity – ie a Leader / Guide / Instructor. Other people are relying on the Leader/Guide/Instructor for their overall safety and enjoyment.

This exam is designed to identify any gaps that may exist in your knowledge. Missed exam questions may indicate that you require specific refresher training. Poor performance indicates that you are not yet ready to act in a leadership capacity. Each missed exam question must be thoroughly reviewed until competency is achieved.

Carefully read each question then choose the most correct answer.

Competency can be demonstrated by scoring 15 initially or by thoroughly reviewing each missed exam question until competency is achieved.

- Q1. Choose the statement that best defines the term 'risk'
 - A An event that could occur at any given period
 - B The consequences if an event occurs within a specified period
 - \Box C
 - C The likelihood of an event occurring
 - D The likelihood and consequences of potential injury resulting from a hazard
 - E None of the above are correct.
- Q2. Choose the statement that best defines the term 'hazard'
 - A A source of harmful energy that could lead to a dangerous situation
 - B A source of potentially damaging force
 - C A source of potential harm or a situation with a potential to cause injury and/or loss
 - D A source of harm

E

None of the above are correct.

Q3. The concept of risk has two elements. List the two elements:

- (i) _____
- (ii)_____

Q4. TRUE or FALSE

"It is possible to create a totally risk free work environment"

True

False

Q5. List at least four reasons why we should manage risk.

- We have given you one answer to lead your thoughts in the right direction ...
- (i) Access to insurance (too many accidents leads to very high premiums or the insurer may decide not to insure a business if it deems it to be unsafe).

(ii)	
(iii)	
(iv)	
(v)	

Q6. From the list provided, rank in order of sequence, the five steps of the risk management process: (1 = first step, 5 = last step)

•assess and prioritise the risks) 1	
•identify the risks	2	
•establish the context	$\succ \Box > 3$	
•treat the risks	4	
•analyse the risks) 5	

Q7. In terms the 'hierarchy of control', there are six (6) fundamental ways to control risk. From the list provided, list the hierarchy of control in their preferred order (1 = the most preferred; 6 = least preferred):



Which of the above is a long-term control measure?

Which of the above is a <u>short-term</u> control measure?

	According to general State/Territory WHS Regulations, for all <u>high risk</u> work that requires a fall protection system (either recreational or industrial), what action should be carried out before commencing the work?			
		A	ensure access to the top and bottom of the cliff/structure is possible	
		В	conduct a risk assessment	
		С	prepare a SWMS (Safe Work Method Statement) also known as a Work Method Statement	
		D	conduct a risk assessment and prepare a SWMS (also known as a Work Method Statement)	
		Е	install a fall protection system for all persons who come into contact with the workplace	
		F	erect barricades and/or install warning signs to prevent falls from height	
		G	none of the above are specifically required under general WHS legislation	
	What	is a u	zorknlace?	
).	True o	of Fal	3e	
	"A du safety	ty ho risks	Ider under the Workplace Health and Safety (WHS) Act is required to <u>eliminate</u> all health and at a workplace".	
		Tru	ie 🗌 False	
	Expla	in yoı	ir answer:	
•	You h On the protec What	ave a e day, tion I actior	confirmed booking for an activity at height – conducted <i>outdoors</i> . it has started to rain – but you have already taken payment and everyone has arrived on site. Fall PPE is required and human rated 'fall-arrest' type ropes are used. in should you take? Choose a response and explain your answer	
	Π	Α	Cancel the activity and give full refunds	
		В	Proceed – rain/water does not affect fall protection PPE or the environment (ie outdoor environment)	
		С	Postpone the activity – check meteorological reports (eg weather radar) and determine period of time until weather is likely to clear – reschedule to another time/date that suits all parties	
	\square	D	Discuss the weather with clients while on site and take a vote – it's a democratic decision	

- (take a vote, majority decision)
 Proceed yes, it will be slippery but PPE still has sufficient strength despite being wet
 - clients can't sue you if they slip in wet conditions and injure themselves (they have consented to run the risk of harm) **Civil Liability Acts** prevent all lawsuits anyway.

Explain your answer:

Q12. Choose from the list provided in the box below:

All <u>employers</u> have four fundamental <u>common law</u> obligations that they must fulfil. These obligations are; (indicate the 4 correct answers)

- A The provision of a safe place of work
 B The provision of workers compensation
 C The provision of adequate staff training
 D The provision of a safe system of work
 E The provision of an equal opportunity work environment
 F The provision of safe equipment and tools (i.e. plant and machinery)
 G The provision of competent staff
- Q13. As a professional, you owe a duty of care to your clients/participants when conducting activities at height. What is meant by the term "<u>Duty of Care</u>"? How does your *Duty of Care* differ from regulations imposed by WHS legislation? Explain your answer.

Q14. In terms of the harmonized WHS legislation which is in force in most States/Territories of Australia, under what circumstances must a fall protection system be used to safeguard against serious injury or death? Note: A fall protection system means a harness, rope and belay system used at a 'workplace'.

NOTE: VIC has not fully adopted the harmonized WHS legislation but, the intent is substantially the same. Indicate your answer:

Fall protection system is only required when you are 2.0m (or more) above the ground. In led (eg guided) outdoor recreation activities, the WHS laws don't apply – you don't need В fall protection. Fall protection is required whenever a person can fall from one level to another where there С is a reasonable chance of injury and/or death. The need for fall protection is determined by the person in charge of the workplace – it is D always based on an opinion and the law has nothing to do with forming that opinion. The Civil Liability Act in all States prevents lawsuits so any outdoor recreation operator is Ε immune from prosecution – and therefore fall protection is optional. We live in a nanny State - where everyone is wrapped in cotton wool. If people fall from F height, its their own fault. The use of fall protection is entirely a *personal choice* and has

nothing to do with the business operator or Guide (leader) in charge.

Q15. The harmonized WHS legislation refers to 'reasonably practicable' where there is a requirement to do something to reduce the risk of injury. The courts have also applied their interpretation of how 'reasonably practicable' is to be applied at a workplace.

Hypothetical situation: You find yourself in a court and trying to defend yourself from prosecution. Your appointed lawyer is arguing on your behalf.

Which of the following arguments can you tender in front of a judge to have your case dismissed?

NOTE: VIC has not fully adopted the harmonized WHS legislation but, the intent is substantially the same.

Indicate which legal arguments your lawyer could argue to sway the judge: You may indicate more than one answer...

- - My client cannot be held liable for failing to use a method which, at the material time, had А not been invented or known.



My client is not expected to be an expert your honor. The level of knowledge and skill that my client is expected to have is no greater than that of his clients.



- Your Honor, the cost associated with eliminating or reducing the risk is grossly disproportionate to the level of that risk. Some risk is inherent in all outdoor recreation activities, and they can never be fully eliminated.
- Your Honor, my client is struggling financially and cannot afford the cost of reducing the D known and identified risks. It is not reasonable to apply the same legal standards to a small business operator compared to larger more wealthy companies who can easily afford to manage risks. In consideration of the financial position of my client, it is a reasonable legal excuse for him to avoid spending money to control the known risks.
- E F
- Your honor, my client didn't know there was a WHS ACT and because he didn't know about the law, I request that you show mercy and dismiss this case against him.
- Your honor, my client was following the techniques and procedures he was taught back in the 1970's. Those techniques were 'state-of-the-art' and his instructor was the best there is. My client should not be punished for doing what he was taught, and it is unreasonable to continuously try to keep up with industry best practices. Why change something if it works?
- O16. Choose the response that best describes a liability release (i.e. indemnity/waiver) form:
- Liability releases aren't worth the paper they're written on. A
- Nobody reads liability releases and the courts subsequently don't place much emphasis on В them. You can simply claim in a court; "I never read it your honor; I just signed it".
- Liability release forms rely on the defence of 'volenti non fit injuria' (the person consents to run the risk of harm at their own expense) and are also defined in various State/Territory Civil Liability Acts.
- Liability releases are only valid for two years after the course and become useless after that D time.
- O17. Human factors often play a role in accidents. What is meant by 'human factors' and what role does this play in risk management? Choose one answer only.
 - А

Staff are your biggest risk factor, whenever you place a real person in the loop, expect accidents. That's why robots are used whenever possible (including auto-belays).

- В
- When too many distractions are occurring, it can overwhelm people and cause them to make mistakes. If you reduce distractions at the workplace, you also reduce accident potential. Business operators / decision makers should try to design systems and procedures to make it
 - as easy and uncomplicated as possible. The larger the number of procedures, particularly if they rely on memory and skill, the higher the probability of someone making a mistake. Site 'culture' also plays a role – should encourage staff not to engage in risk taking behaviors. D
 - The current generation of workers are too soft and complain too much, and nothing ever gets done. Its hard to find staff who will just get on with it and get things done no matter what.

Q18. The following questions refer to an <u>activity at height</u> that you are planning. Depending on your current experience level or course, choose a question (either a, b, c, d, e, etc...) that matches your current situation or is relevant to the scope of training you are presently undertaking.

Only answer the questions that are relevant to you.

- 18a Abseiling (single pitch) natural surfaces
- 18b Abseiling (multi pitch) natural surfaces
- **18c** Top rope climbing (natural surfaces)
- **18d** Top rope climbing (artificial surfaces)
- 18e Challenge ropes course (high elements)
- 18f Lead climbing (multi pitch) natural surfaces
- 18g Rope access (ISO 22846)

Q18a. ABSEILING ACTIVITY (SINGLE-PITCH) – OUTDOOR RECREATION

You are planning to guide two (2) clients on a single-pitch abseiling activity at a natural cliff. The proposed abseil route is 40m vertical height. Your clients are reasonably fit and adventurous but have never abseiled before. Your clients have paid and you have accepted their booking - the abseil is definitely going ahead. There are no facilities at the cliff - ie no water, no toilets and no shops. What type of rope will you use for the descent? Low stretch ('static') rope Dynamic rope How many abseil ropes will you setup and deploy? Why? Explain: How will you deploy and set the abseiling rope(s)? Choose an answer... Deploy so abseil rope is just short of the ground (about 300mm above the ground) Deploy so abseil rope just touches the ground (no excess rope on ground) Deploy so there is extra rope length lying on the ground – eg between 2m to 4m of excess rope on ground. Explain your answer: What diameter rope will you use? mm Why do you prefer this particular diameter rope? Explain: Will you allow both clients to abseil simultaneously or one at a time? Explain... One at a time А B Both clients simultaneously using their own rope (two abseil ropes are deployed) С Both clients simultaneously using a counter-weight abseil (rope is doubled around anchor point – so it's retrievable) Explain your answer:

What type of abseil device will your clients use? Indicate your answer...



Explain your answer:

How will you manage the safety of your clients while they abseil (in case they get into difficulties or lose control on the way down)?

А	I would use a bottom-managed brake (ie have a person on the ground holding the abseil rope)
В	I would use a top-managed belay system with a <i>fixed</i> (non-releasable) abseil rope
С	I would use a top-managed belay system with a <i>releasable</i> abseil rope
D	I would ensure that my clients use a 'self-managed' belay system (a slide and grip hitch tied to their abseil rope – eg a French prusik hitch)
E	I would not use any form of top-managed belay system to safeguard my clients instead, I would provide them with a cam assisted self-braking device that has an anti-panic function (eg GriGri + or an industrial rope access device such as a Petzl ID)
F	Clients don't need any safety backup. They just need to understand that they can't let go of

Clients don't need any safety backup. They just need to understand that they can't let go of the brake side of the rope (ie free end). All you need to do is keep reminding them of that.

Explain your answer:

What type of cliff will you choose to rig and deploy your abseil rope(s) for your clients?

- A Vertical cliff with top and bottom foot access and no loose rock.
- ____ B

Vertical cliff with an overhanging section (so their feet can't touch the cliff) – with top and bottom access.



Explain your answer:

There are two significant hazards that you have identified on this spectacular abseil route. For each hazard, list as many risks you can think of. Enter your responses in the space provided.

	HAZARD	RISKS
1	Cliff topography prevents direct visual contact when the abseiler approaches the bottom.	
	Visual contact becomes impossible from the half-way point onwards.	
2	There is an overhang half-way down. From that point onwards, the abseilers feet will not touch the cliff face (overhanging descent in free space).	
3	A staff member (another abseiling Guide who is assisting you) has deployed the abseil ropes for you. However, there is approximately 5m of excess rope length lying on the ground. There is no time to make any adjustments or to re-deploy the ropes (the clients have arrived). The client group is school children (year 10 students) with little to no	
4	prior experience. The abseil site is a natural cliff with a <u>90 degree abrupt edge</u> . The anchors are low to the ground – so the abseil rope angle with respect to the edge is close to zero ('departure angle' is very low).	
	This is the only site – there are no other anchors available. There is no way to avoid the 90 degree cliff edge. The client group is school children (year 10 students).	

Q18b. ABSEILING ACTIVITY (MULTI-PITCH)

You are planning to guide two clients on a multi-pitch abseiling activity on a <u>natural cliff</u> . The proposed descent route is 180m total vertical height . You consider the route to be well suited to the abilities of your clients who are experienced bushwalkers and reasonably fit. There are convenient ledges spaced at approximately 50m intervals each about 1m wide. There are no bolts and chains installed as yet but it is possible to use natural tree anchors and/or removable protection devices (eg wired nuts). You have descended the route before and therefore have personal experience. The walk back to the top of the cliff will require a 2 hour walk (via a rough unpaved trail). Your clients have paid and you have accepted their booking – the abseil is definitely going ahead. There are no facilities at the cliff – ie no water, no toilets and no shops.			
What type of rope will you use for the descent? Low stretch ('static') rope Dynamic rope			
How many ropes will you take? Why?			
What length will your rope(s) be?m Why?			
What diameter rope will you use? mm Why do you prefer this particular diameter rope? Explain:			
In what order will all participants descend? Eg Will you (ie the guide) descend 1 st followed by the clients or will you send a client down 1 st ? A Guide descends first B Clients descend first (Guide last) Explain:			
How will you safeguard your clients from potential falls and/or loss of control while they abseil each pitch? Explain:			
What type of abseil descending device will you select for your clients? Indicate your answer			
A Manual braking device: Figure 8 descending device			
B Improvised system: Munter hitch / Italian hitch			
C Cam assisted self-locking device with <u>no</u> anti-panic function (eg GriGri VER 1 or 2)			
D Cam assisted self-locking device with anti-panic function (eg GriGr+ or similar)			
E Manual braking device: Tubular design with 2 slots (eg ATC)			
F Manual braking device: In-line design (eg 'Whaletail' or 'Hydrobot' or 'Scarab')			
G Industrial rope access descending device: Petzl ID			
Explain your answer:			

What type of equipment will you take to set up reliable anchors for each pitch? Select one from the list:

	А	Cams (s	spring	loaded	camming	devices)
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- B Wired nuts
- C Hex's (hexcentric chocks)
- D Pitons and a hammer
- E Tape (webbing) slings (factory pre-sewn)
- F Tape (webbing) slings (hand tied with tape knots #1412)
- G Cordless hammer drill + mechanical expansion bolts

Explain your answer:

How will you rig the rope(s) for the descent? Select one answer from the list:

А

- I would join 2 x 100m ropes together (end-to-end join to make a 200m linear length) and have each participant perform a knot bypass on the way down (avoid intermediate belays). The rope will be fixed to the anchor (not retrievable).
- ____ B

I would deploy one long 200m rope thereby avoiding the need to re-anchor or perform knot bypasses on the way down. I would purchase an extra large haul bag to carry the 200m length of rope. The rope will be fixed to the anchor (not retrievable).

C I would rig the rope(s) to be retrievable with each rope being 50m-55m in length – ie join 2 ropes together so they are doubled through an anchor and can be <u>retrieved</u> by pulling one end from below.

Explain your answer:

If you chose to rig a retrievable abseil system, what would you do if a rope became stuck (half-way down the cliff face) and will not slide no matter how hard you pull? Explain your answer:

Each person will have a personal backpack for the abseil descent. Each pack weighs approximately 10kg (water, food, emergency gear, etc). How will you instruct your clients to wear/carry their packs during their abseil descents? (eg wear packs on back or suspend pack with a sling?). Explain your answer:

All cliffs have potential for loose rock to varying degrees – that is, some routes have had relatively few descents and so may have more loose rock, or the type of rock and area is known to be loose in places. What precautions will you take to avoid injury to your clients while they are abseiling or waiting their turn on a ledge?

Explain all steps that you would take:

There are two significant hazards that you have identified on this spectacular multi pitch abseil route. For each hazard, list as many risks you can think of.

Enter your responses in the space provided. Your instructor will discuss the risks you had identified...

	HAZARD	RISKS
1	Cliff topography prevents direct visual contact when the abseiler reaches the first belay ledge.	
2	A retrievable abseil system is required to be setup and deployed. The ropes must be retrieved once everyone descends the first pitch. There is some vegetation present, and there are some deep cracks high on the 1 st pitch.	

Q18c. TOP ROPE CLIMBING – NATURAL SURFACES - OUTDOOR RECREATION

You are planning to guide two clients on a top rope climbing activity at a <u>natural cliff</u>. The planned route is **45m vertical height** and there is no foot access to the bottom. The only access to the start of the route is via lowering or via abseil. Walking in to the start of the route would take several hours in difficult and steep terrain – not to mention the heat of summer. Other routes in the area are either too easy or too hot as there is no shade (its summer season at the moment). The planned route is established and named and has a *** star quality rating. You consider the route to be well suited to the abilities of your clients who have climbed indoors extensively but have minimal outdoor climbing experience. Nevertheless, they have paid and you have accepted their booking – the climb is definitely going ahead. There are no facilities at the cliff – ie no water, no toilets and no shops.

What type of rope would you use on the climb?
A Low stretch ('static') or; B Dynamic?
Explain why you would use this particular rope(s):
If you chose a dynamic rope, what category would you use on the climb (indicate type)?
A Single B Half C Twin
Explain why you would use this particular category of rope:
Explain how you would get your clients down to the start of the route (ie your preferred procedure): A Lower them (one at a time) B Abseil down (one at a time)
Explain why you chose a particular method:
How will you safeguard your clients from potential falls and/or loss of control on the way down to the start of the route? (Remember, there is no foot access).
What will you do if one of your clients is unable to climb the crux of the route? (ie the client is already committed on the climb but can't make the crux move).

Explain:

From what position will you require the belay to be performed?
A Bottom of route B Top of route (top-managed belay)
Explain:
Who will actually belay the climbers? (eg Yourself, or one client belaying the other?):
A Let the clients belay each other B I (the Guide) will belay the clients
Explain your reasoning:
What type of belay device will you choose?
A Manual braking device (eg 'ATC') B Cam assisted self-locking device (eg GriGri)
C Cam assisted self-locking device with <u>anti-panic</u> function (GriGri +)
Explain why you would use this particular type of device:

All routes have some loose rock to varying degrees – that is, some routes have had relatively few ascents and so may have more loose rock, or the type of rock and area is known to be loose in places. What precautions will you take to avoid injury to your clients while they are climbing?

Explain:

In terms of deciding on the risks involved Vs the pressure of running a business and accepting payment from clients, what factors would cause you to draw the line and refuse to accept a booking for a top rope climb?

Explain:

There are two (2) significant hazards that you have identified on this classic 3 star route. For each hazard, list as many risks you can think of. Enter your responses in the space provided.

	HAZARD	RISKS
1	Cliff topography prevents direct visual contact between belay person and climber. Visual contact becomes possible from half-way point onwards.	
2	Crux sections of route – there are 2 equal cruxes: (first is low on route, second is high on route)	

Your instructor will discuss the risks you had identified...

<u>Q18d. TOP ROPE CLIMBING – ARTIFICAL SURFACES – (eg climbing gym)</u>

You are planning to conduct a top rope climbing activity at a private school indoor climbing wall (artificial surface). There are ten students. The routes are **12m vertical height**. Belay ropes on this wall are not presetup, there are 3mm draw cords (security measure to stop unauthorized use of the wall). There is a wide variety of route difficulty levels – all colour coded (black is most difficult and green is easiest). Climbing ropes need to be setup using the draw cords (the 3mm cord is attached to the climbing rope so it can be pulled up and set).

What type of rope would	you use on the climbing routes?
A Low stretch ('static') OR; B Dynamic?
Explain why you would u	se this particular rope(s):
What type of belay device	e will you choose?
A Manual braki	ng device (eg 'ATC') B Cam assisted self-locking device (eg GriGri)
C Cam assisted	self-locking device with <u>anti-panic</u> function (GriGri +)
Explain why you would u	se this particular type of device:
What type of harness wou	Ild you issue to your clients?
A Manual buck	les with fixed legs loops B Manual buckles with adjustable leg loops
C Auto (self-loo	cking) buckles with adjustable leg loop
Explain why you would u	se this particular type of harness:
Would you allow your cli	ents to belay each other?
Yes	No
Explain your answer:	NOTE: If you indicated "Yes" include any additional safety measures you would include

How many routes will you set up for your group of ten students?

- A 1 route only (only 1 student can climb at a time).
 - **B** 2 routes (routes are separated by more than 5m distance)
- C 2 routes (side by side routes close together)
- D 3 routes (separated more than 5m separation between each route)
- E 3 routes (all routes clustered together 3 in a row)
- F 4 routes (separated more than 5m separation between each route)
- G 4 routes (all routes clustered together -4 in a row)
- H 5 routes (separated more than 5m separation between each route)
- J 5 routes (all routes clustered together -5 in a row)

Explain your answer:

Will you require all belayers to be anchored to the floor / ground or would you allow them to be freely standing (not anchored to the ground)?



A I would ensure that all belayers are anchored to the floor ('ground').



B I would allow the belayers to be standing free (not anchored)

Explain your answer:

How many qualified Guides will you need to run a top rope climbing activity for 10 students?

Explain your answer:

How will you attach the climbing rope to each students harness? (what method will you use). Explain your answer:

There are three (3) significant hazards that you have identified for this activity

For each hazard, list as many risks you can think of. Enter your responses in the space provided.

	HAZARD	RISKS
1	Assume that the students will belay each other. (the school Principal wants to include team work and trust in the activity).	
2	There is a mix of different harnesses – some have manual buckles and some have automatic self-locking buckles. (assume 5 of each).	
3	Rope attachment method to the students harnesses. Assume that a decision has been made to <u>tie</u> the rope directly to each climbers harness. No clip-in system is used.	

Your instructor will discuss the risks you had identified...

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Q18e. CHALLENGE ROPES COURSE

You are planning to conduct an activity at a privately owned challenge ropes course - on high elements. There are ten students. There are a range of different elements. Belay ropes are not pre-setup, there are 3mm draw cords (security measure to stop unauthorized use of the elements). Belay ropes need to be setup using the draw cords (the 3mm cord is attached to the belay rope so it can be pulled up and set).

What type of rope would you use to setup the belay systems for the high elements?

A Low stretch ('static') OR; B Dynamic?				
Explain why you would use this particular rope(s):				
What type of belay device will you choose?				
A Manual braking device (eg 'ATC') B Cam assisted self-locking device (eg GriG	ri)			
C Cam assisted self-locking device with <u>anti-panic</u> function (GriGri +)				
Explain why you would use this particular type of device:				
]			
What type of harness would you issue to your clients?				
A Manual buckles with fixed legs loops B Manual buckles with adjustable leg loops				
C Auto (self-locking) buckles with adjustable leg loop	C Auto (self-locking) buckles with adjustable leg loop			
Explain why you would use this particular type of harness:				
Would you allow students to belay each other?				
Yes No The Guide will perform all belay duties.				
Explain your answer: NOTE: If you indicated "Yes" include any additional safety measures you wou include	ıld			

While setting up a belay rope, the 3mm draw cord detached – and everything fell to the ground. Now there is no draw cord in place (its lying on the ground). This was an essential element – can't run the activity without it.

Someone has to climb a pole, transfer to a horizontal steel wire rope lifeline and traverse out to re-thread the 3mm draw cord.

Assume that you are on your own - there is no one else to assist. You are the only qualified Guide on site.

Would you climb up and re-install the draw cord yourself (on your own)? Assume that you have the skillset to do it – its just that you are on your own.

_ Yes

__ No

Explain your answer:

On one high element, students will be using their own dual leg lanyards (ie 'lobster claws'). Are there any potential issues associated with using dual leg lanyards?

Yes

NO (there are no issues, nothing can go wrong)

Explain your answer:

There are three (3) significant hazards that you have identified for this activity For each hazard, list as many risks you can think of. Enter your responses in the space provided.

	HAZARD	RISKS
1	On one element, the students will use their own 'self-belay' system (dual leg lanyards – also known as 'lobster claws').	
2	There are two elements where students will be belayed with a rope from the ground (separate belay person). Assume that the school Principal insists that team work and trust must be a part of the experience	
3	Staff need to climb up poles to access various elements (eg for maintenance work or to re-thread draw cords). U staples (foot pegs) are driven into timber poles. Staff use dual-leg lanyards to climb the poles, and clip into the staples. It is not known if the staples are rated for falls. Even if they are rated, what if a staff member falls and hits his/her head (knocked unconscious)?	

Your instructor will discuss the risks you had identified...

<u>Q18f. LEAD CLIMBING (MULTI-PITCH) – ON NATURAL SURFACES - OUTDOOR</u> <u>RECREATION</u>

You are planning to guide two (2) clients up a multi-pitch route (lead climbing). The planned route is a 'trad route' of 5 pitches and 180m total vertical height. The clients have told you that they have climbed indoors 'quite a bit' but have minimal outdoor experience. Nevertheless, they have paid and you have accepted their booking – the climb is definitely going ahead. You (ie the Guide) will lead the route and the clients will climb as 'seconds'. Your proposed route has a *** star quality rating and has already been established and graded. You have climbed it before and therefore have personal experience on the route. You consider it to be within the abilities of most people who are reasonably fit, and have some climbing experience (either indoor or outdoor). The only access to the top of the cliff is via lead climbing and the only way off is via abseiling. The abseil descent route is multi-pitch (2 x 50m pitches) and there are abseil chains installed. There are no facilities at the cliff – ie no water, no toilets and no shops. Access to the cliff is via 4WD followed by a half hour (30 min) walk in.

What type of climbing rope(s) would you use? eg single, half or twin rope? ______ Explain why you would use this particular category of rope(s):

How many rope(s) would you use on the climb?	Single rope only		Double ropes

Explain _

On the abseil descent after completion of the route, in what sequence would you send your clients down? (eg Guide 1^{st} , then clients – or a client 1^{st} , then Guide, then the last client... etc)

Explain your answer:

How will you have the clients belay you while you lead the route? ie Will you nominate one of the clients to act as the designated belayer? Or, will you have both of them belay (eg if you use double ropes – each client handles one rope independently).

Explain:

What type of belay device will you select for your clients to use?
A Manual braking device (1 slot only) B Manual braking device (2 slots – eg 'ATC')
C Cam assisted self-locking device (GriGri)
D Cam assisted self-locking device with <u>anti-panic</u> function (GriGri +)
Explain why you selected this particular type of device for your clients:

<u>Q18f. Lead climbing (multi-pitch) – Outdoor recreation</u> (continued....)

All multi-pitch routes have some loose rock to varying degrees – that is, some routes have had relatively few ascents and so may have more loose rock or the type of rock and area is known to be loose in places. What precautions will you take to avoid injuring your clients while you are leading? Explain all steps that you would take:

In terms of deciding on the risks involved Vs the pressure of running a business and accepting payment from clients, what factors would cause you to draw the line and refuse to accept a booking for a multi-pitch lead climb?

Explain:

There are two significant hazards that you have identified on this classic 3 star multi pitch route. For each hazard, list as many risks you can think of. Enter your responses in the space provided.

	HAZARD	RISKS
1	Cliff topography prevents direct visual contact between the lead climber (ie the Guide) and the 2 clients at the belay stances. Visual contact only becomes possible from half-way point on a pitch onwards.	
2	The crux pitch is 45m in length – and it has a <u>traversing</u> crux section (the route goes horizontally to the right for about 4m).	

Your instructor will discuss the risks you had identified...

Q18g. ROPE ACCESS JOB – (INDUSTRIAL ROPING)

You are planning to work on a 35m high building in an Australian capital city. There are no balconies or ledges to stand on the side of the building and the manager does not want to use a cherry picker or other elevating work platform. Management want to minimise disruption to the office staff who work in the building. The contract requires all the windows on the northern (front) side of the building to be cleaned and the rear (southern) side to be inspected for cracks. The first row of windows and cracks cannot be reached from the ground. The windows extend from about 6m all the way to the top. The contract specifies that the work is to be complete during January.

The building has underground carparking and the entry/exit point is at the front of the building (Northern side). There is pedestrian access all around the base of the building.

The main road passes only across the front of the building (ie the northern side) – the are no other roads adjacent to the building. Other buildings & office complexes surround the building.

The roof of the building is accessed via stairs and the edge of the roof is a 900mm high parapet wall. The stairwell emerges in the centre of the roof (hatch). The parapet is not intended for structural loads. The roof is metal sheeting screwed down. There are no permanently installed rope access anchors on the roof. The roof has been engineered to comply with building codes in cyclone regions.

All air conditioner motors and the lift well drive plant is all located in the plant room immediately below the roof. The roof top is essentially barren apart from a small satellite dish and a few TV and UHF aerials.

Note: The sun always rises in the east and sets in the west.

Answer the following questions: (note that some questions ask you to answer from the point of view as an employer)

Which Australian Standards apply to this particular type of work?

Given that there are no permanent in-situ anchors on the roof, how would you expect to setup suitable anchorage? Explain:

What is the minimum number of operators you would plan to employ for the work (assume the workers are competent)?

Why?

How will you avoid injuring ordinary members of the public who may be walking underneath while work is in progress?

How will you deploy your ropes – what particular strategy will you use (ie use a rope bag and abseil out of the bag or simply lower the rope down so they are fully extended to the ground?

Why?

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Q18g. Rope access job – (Industrial roping) – continued				
What type of rope will you use for the work? [] Static (low stretch) rope [] Dynamic rope				
How many ropes will each worker use? Why?				
What length will your rope(s) be?m Why?				
What diameter rope will you use? mm Why do you prefer this particular diameter rope? Explain:				
How many workers will you have suspended on a rope and performing actual work at the same time? [] I would only allow 1 worker to perform rope suspension work at any one time [] I would require everyone to be working at the same time so that maximum productivity can be achieved [] As many workers as possible but at least one person to act as a standby/spotter [] Unsure Will you require all workers to use a bosuns chair (ie swing seat) while suspended on a rope?				
[]Yes []No []Unsure				
Explain your answer				
 What type of fall-arrest device will you require your workers to use when working within a rope suspension system? [] Petzl Shunt [] Retractable type 2 lanyard [] A device that meets the requirements of ISO 22846 as guided type fall-arrest device [] A device that meets the requirements of AS 1891.3 as a type 2 fall-arrester [] Prusik cord [] None of the above [] Unsure 				
Explain your answer:				
Will you require your workers to complete a written risk assessment / SWMS before commencing work at height? [] Yes [] No Explain your answer				
What type of descending device would you require your workers to use?				
 [] It doesn't matter what sort of descending device we use there is no standard that forces me to buy a particular type – it's a free world and we can use whatever we feel is appropriate [] I would make sure that all workers use a self (ie auto) locking device so that if they let go it will stop them [] I would require everyone to use a self-locking (ie auto) device that has an added two-way locking feature 				

if they let go its stops them or if the panic and pull too hard it still stops them.

[] None of the above

[] Unsure

When performing rope suspension work, how will you organise and carry your tools of trade? Eg If you are cleaning windows, how will you carry your water, squeegee and mop? Explain...

In the unlikely event of an emergency, what response plan will you implement?

For example, if one of the workers becomes unconscious because of heat exhaustion, or is struck and injured by a falling object, what procedure will you use to get that person down?

Explain...

List any hazards/risks that you perceive to be crucial in your decision making process... you must link each risk to a hazard and then determine an appropriate risk score. Use the PACI risk assessment template – you may add as many additional rows as you think necessary...

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Student statement:

I declare that I completed this exam paper without the assistance of others. My answers represent my own work and not the work of someone else. I realise that I may owe a duty of care to others and that my knowledge and skill may be critical in discharging my duties as a worker in charge of others at a workplace.

Student signature:	Date:
Final score	
* Strike out words that do not apply	