

Student name: _____

Date: _____



CANYONING EXAM

Competency can be demonstrated by scoring 100%

- Q1. You are planning a canyoning trip with a group of people. It is not a commercially guided event – and no one is paying for the experience. There are varying skill levels within the group. Everyone knows that you are the most experienced canyoner within the group. Although no one has openly declared that you are the group leader, by default you are making the majority of the safety related decisions. It turns out that one person arrived with insufficient gear – and asks you if he can borrow a harness. You felt obliged to be charitable and borrowed the harness and helped fit and adjust it. At some point while descending, something goes wrong and the person accidentally inverts and falls out of his harness. The person suffered serious lifelong injuries and was evacuated by helicopter. Could the person sue you under a civil law claim of damages? (his lawyers are arguing that you owed him a duty of care since you were more experienced).

☐ Yes ☐ No

Explain your answer:

- Q2. You are planning a canyoning trip with a group of people. It is not a commercially guided event – and no one is paying for the experience. There are varying skill levels within the group. Everyone knows that you are the most experienced canyoner within the group. By default, you end up having to make most of the safety decisions including setting up anchors. At some point, an anchor that you setup fails and a person falls to his death. Could you be held criminally liable for the death (by way of accusations of wrongful death caused by gross negligence and/or recklessness)?

☐ Yes ☐ No

Explain your answer:

- Q3. You are scheduled to Guide a group of people on a canyoning trip. You are being paid for your service. You hold a certification as a qualified canyoning Guide.

Should you (the Guide) have prior experience with the intended canyon?

☐ Yes ☐ No

Make your best argument for justifying your answer:

Q4. What is the definition of a canyon?

The term 'canyon' is a descriptor – just like the term 'dog' is a descriptor.

How do you know if a thing is a dog? How do you know that a place is a 'canyon'?

Note: This question relates to epistemology – how are you able to justify your belief that something is a canyon, versus not a canyon? Words have meaning, when people use the term 'canyon' – what informs their belief?

Explain your answer:

Q5. TRUE or FALSE:

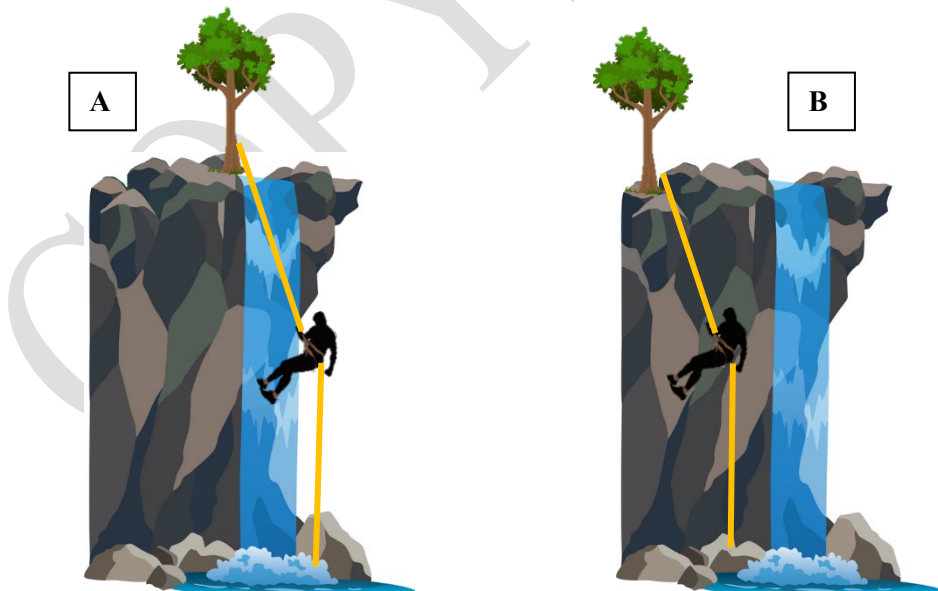
In order for a place to be defined as a 'canyon', there must be flowing water.

(If a previously wet canyon runs dry, it is now no longer a 'canyon').

☐ True ☐ False

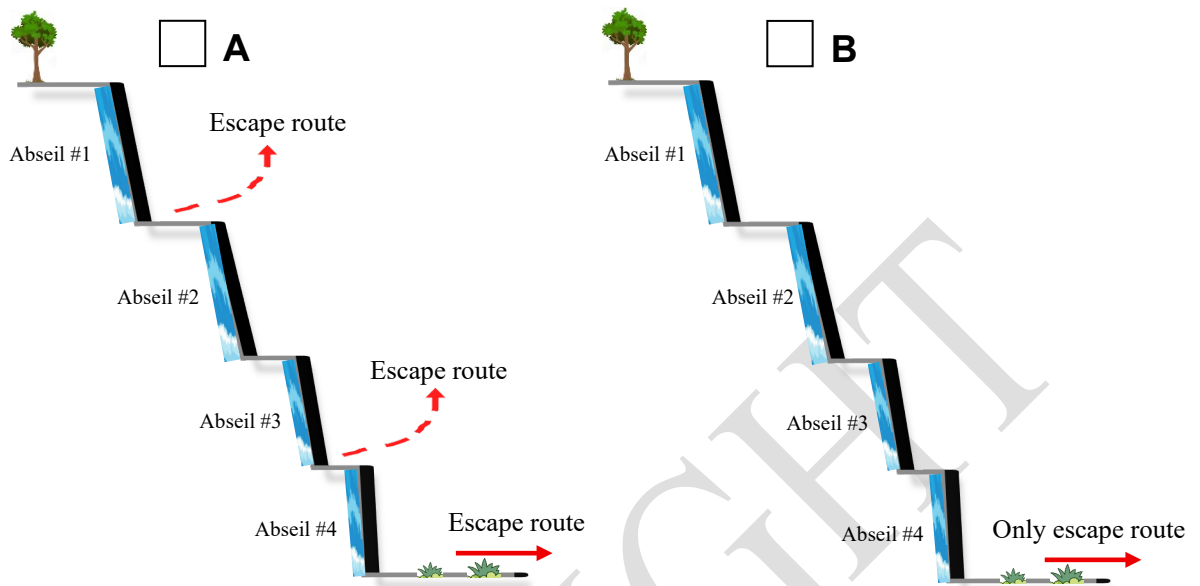
Make your best argument to justify your answer:

Q6. Study the images below (A and B). One of the images is depicting a person descending directly in the flow of the waterfall, which some consider is the epitome of canyoning. However, there may be risks associated with doing so.



Outline the risks of descending directly in the flow of a waterfall:

- Q7. Study the images below (A and B).
Both canyons have swift flowing water (waterfalls) and similar length abseil descents.
Indicate the canyon that you believe is objectively a higher risk undertaking (A or B).
You are required to justify your answer below.



Outline the factors that make one canyon objectively higher risk than the other. Explain:

- Q8. Define the terms single pitch and multi pitch.

Define single pitch:

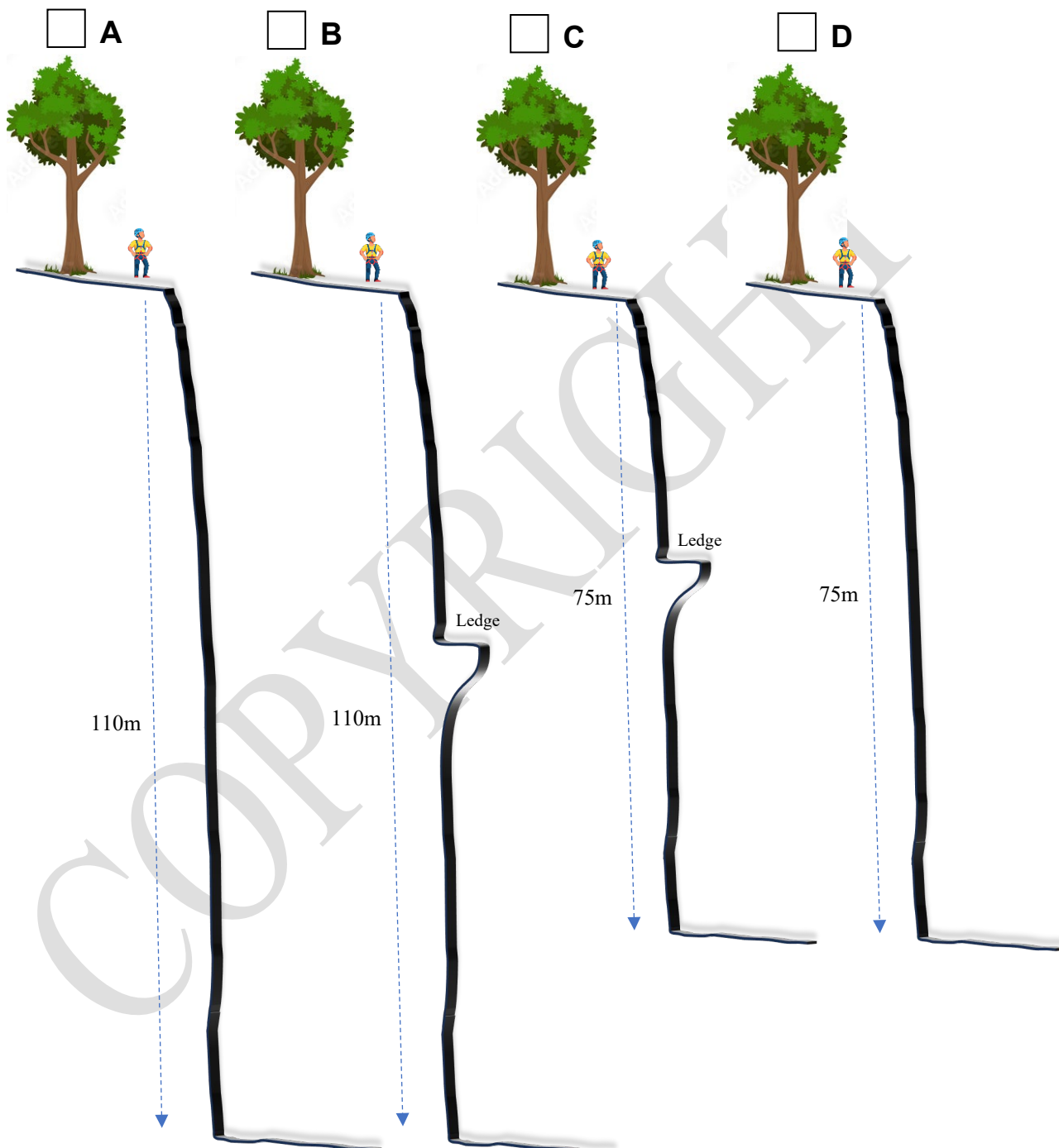
Define multi pitch:

Q9. Which of the following representations would you regard as being 'multi pitch'?

This question is examining the criteria that determine 'multi pitch' status.

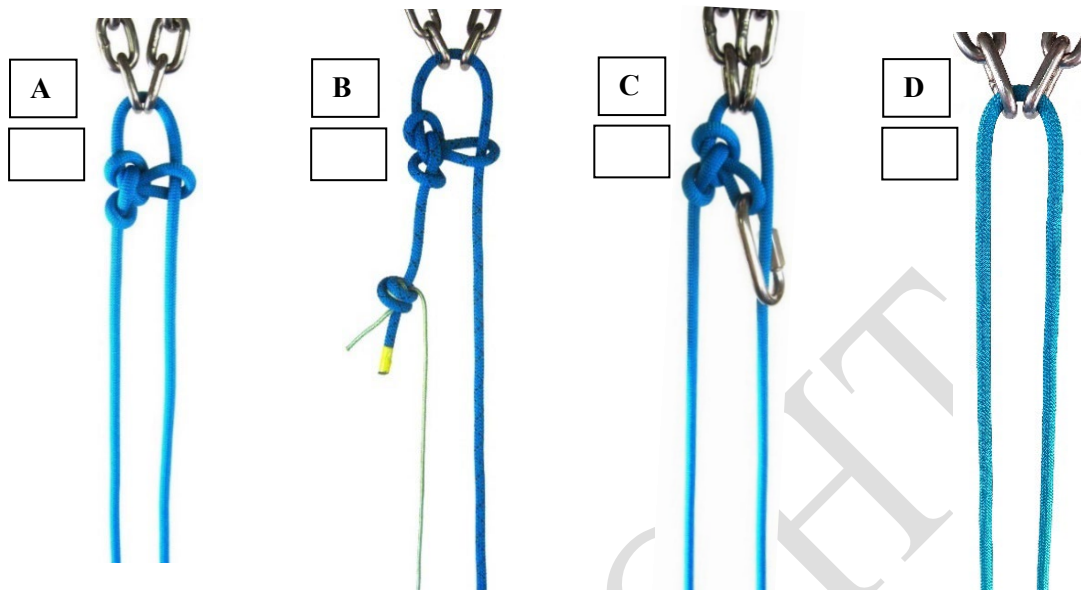
Note: The length of rope you have available is not given for this question – it can be whatever length you would normally carry. The question is testing your logic and consistency in how you make the claim that something is 'multi pitch'. What is the epistemology that informs your belief that something is 'multi pitch'?

You may indicate more than one answer – must be able to justify your answer (below).



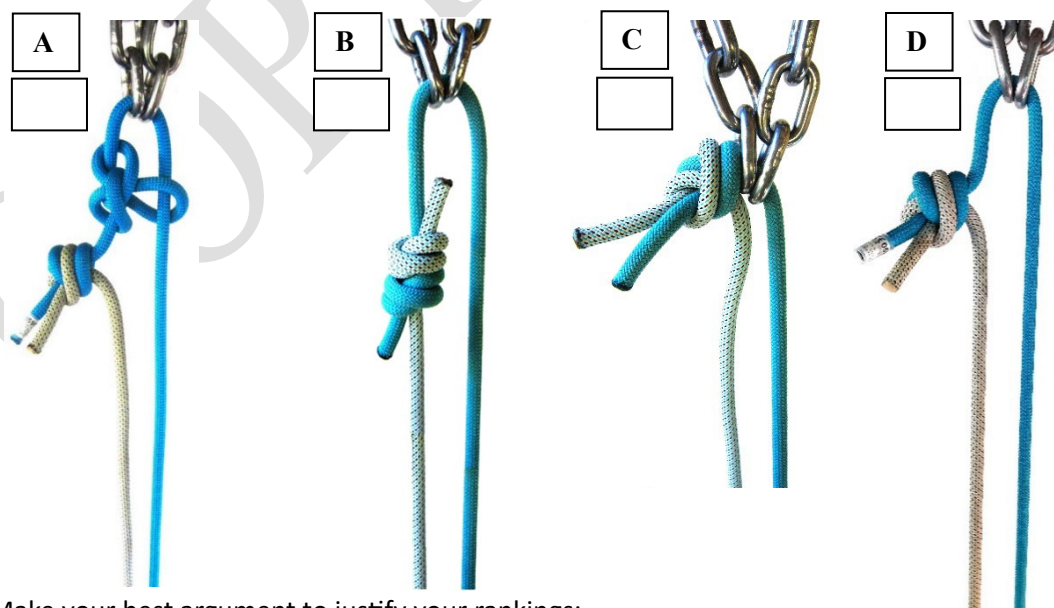
Explain your answer:

- Q10. Study the single rope retrievable abseil systems carefully. Assume that the anchor is solid and reliable. Rank each system on a scale of 1-4.
1 = highest importance, need to know 4 = lowest importance, not essential (nice to know).



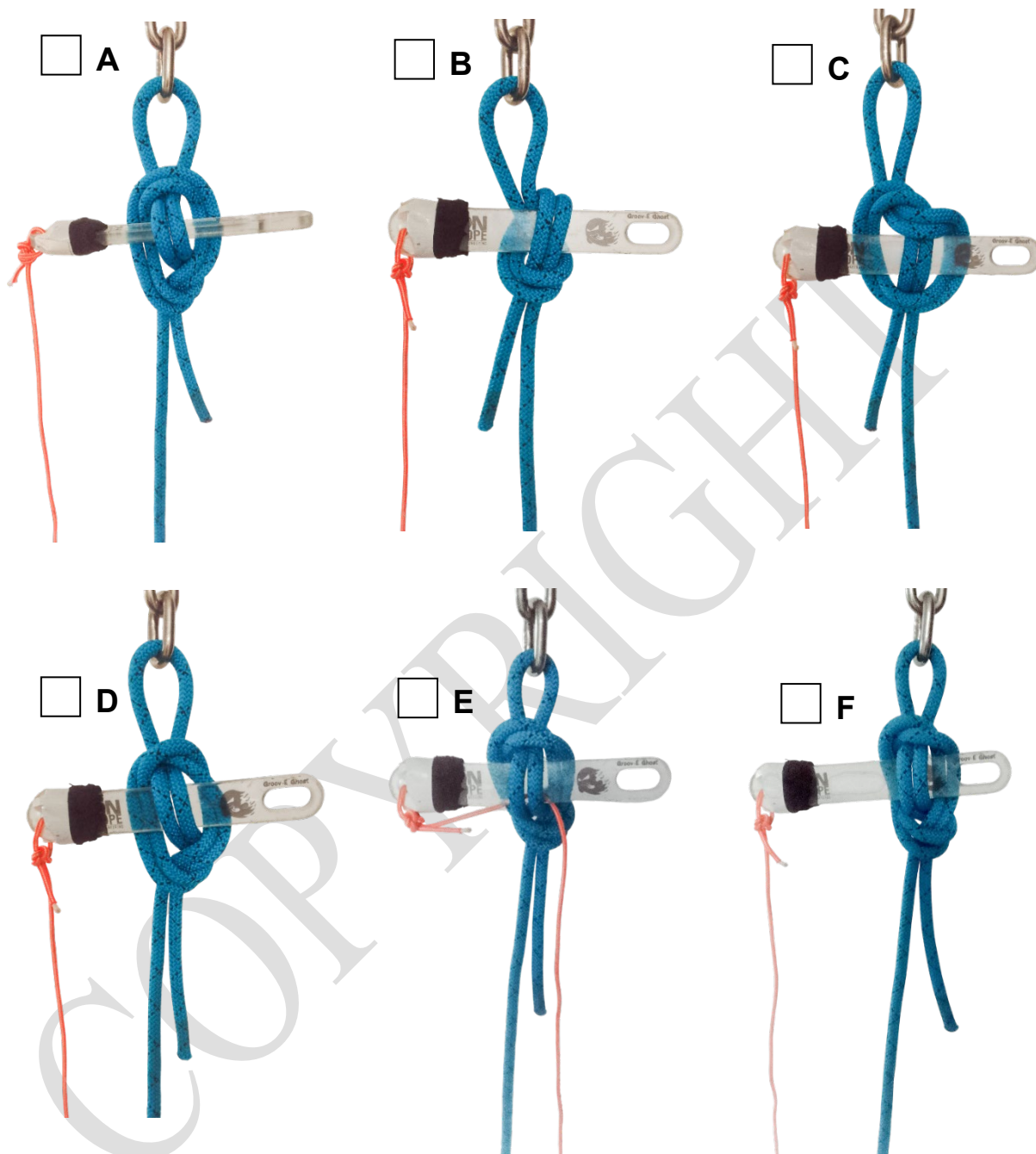
Make your best argument to justify your rankings:

- Q11. Study the double rope retrievable abseil systems carefully. Assume that the anchor is solid and reliable. Rank each system on a scale of 1-4.
1 = highest importance, need to know 4 = lowest importance, not essential (nice to know).



Make your best argument to justify your rankings:

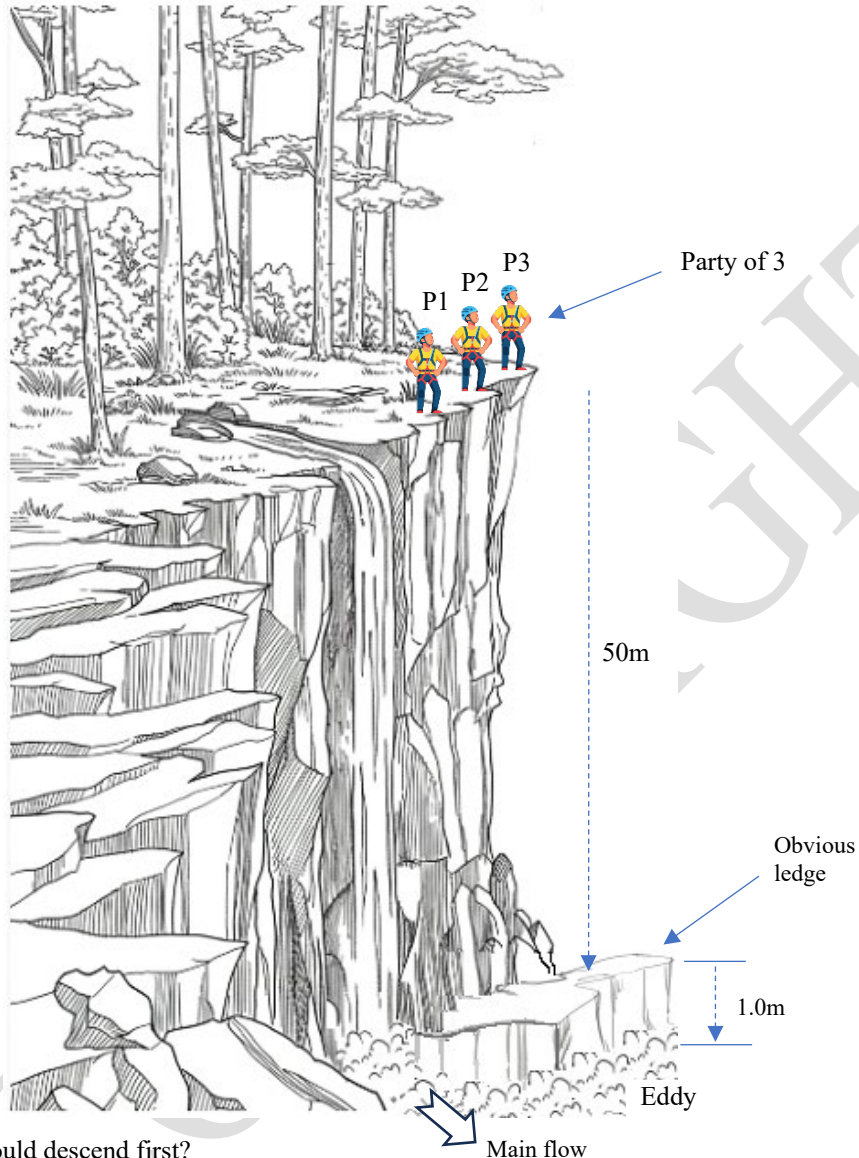
Q12. Study the photos carefully. Choose the Fiddlestick configuration you believe is correct. There is only one correct answer. You are required to justify your belief in your answer – including why you believe other configurations were not correct.



Justify your answer:

Are there any configurations that are unsafe with a high risk of catastrophic failure? (If yes, which ones?).

- Q13. Study the image below. There are 3 people in the group. There are varying levels of competence and experience – person '1' is the most experienced, and person '3' has minimal experience. Explain the order/sequence of descent (who descends 1st and who goes last)? No 'Fiddlestick' is being used on this descent. There is a clear line of sight from top to bottom. Need to retrieve the rope in order to continue through the canyon. Answer the questions below. NOTE: There is no foot access to the bottom (abseil access only).



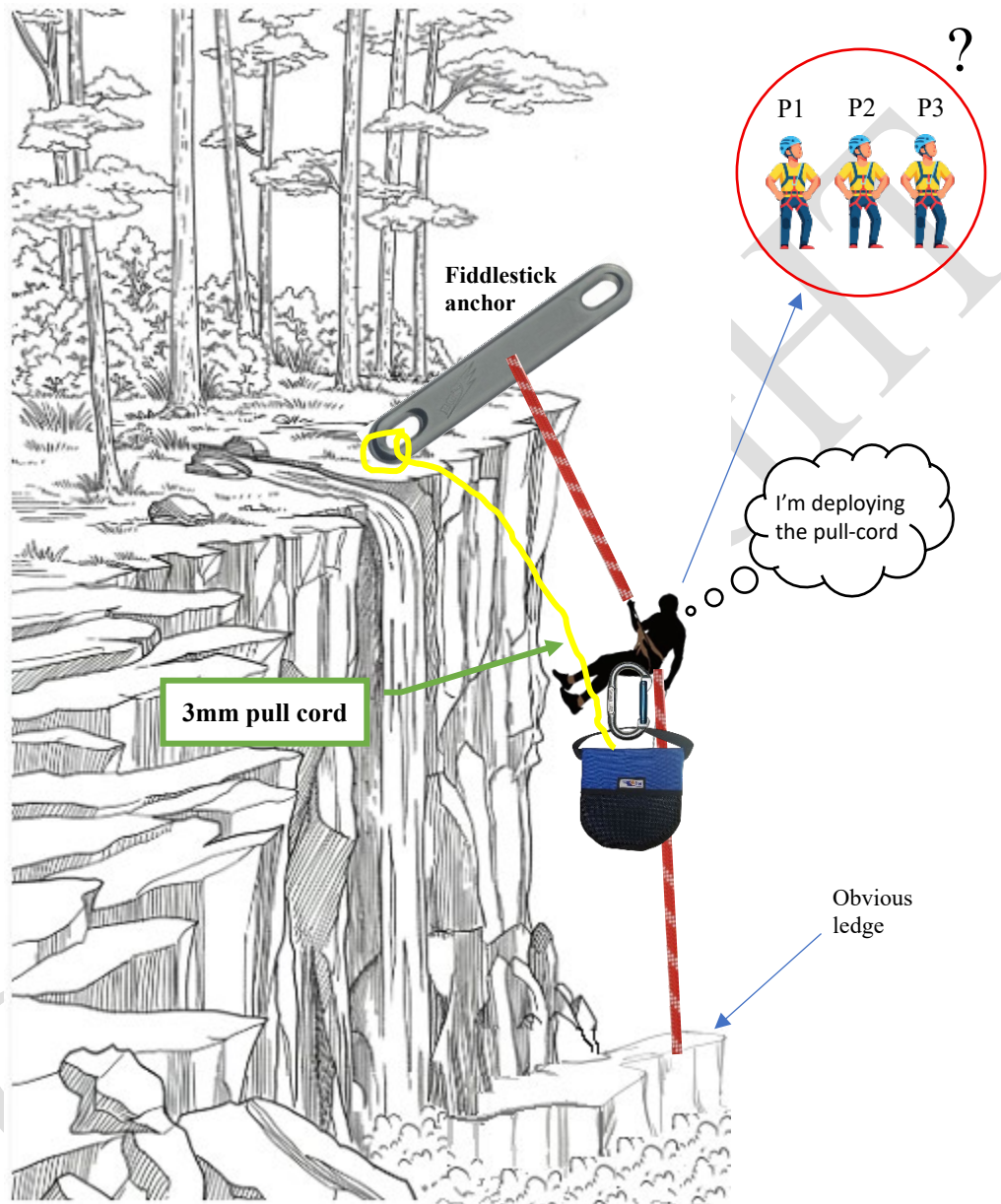
Who should descend first?

Who should descend second?

Who should descend last?

Justify your decisions:

- Q14. Study the image below. There are 3 people in the group (P1, P2, P3). There are varying levels of competence and experience. Person 3 (P3) has minimal experience. It is implied that you (P1) are the most experienced person, and by default the others are deferring to your judgement and decisions.
- A decision has been made to use a 'Fiddlestick' for this abseil descent.
- Who should descend with, and deploy the 'Fiddlestick' pull cord and in what sequence?
- Does the order of descent matter? Provide answers below.



Who should deploy the Fiddlestick pull-cord and in what order of descent (1st, 2nd, or last person)?

Make your best argument to justify your answer:

- Q15. This question relates to 'Fiddlestick' systems.
A decision has been made to use and rely on a Fiddlestick system in a canyon.
List the *advantages* and *disadvantages* of using this system (list as many as you can think of).



Advantages:

1	
2	
3	
4	

Disadvantages:

1	
2	
3	
4	

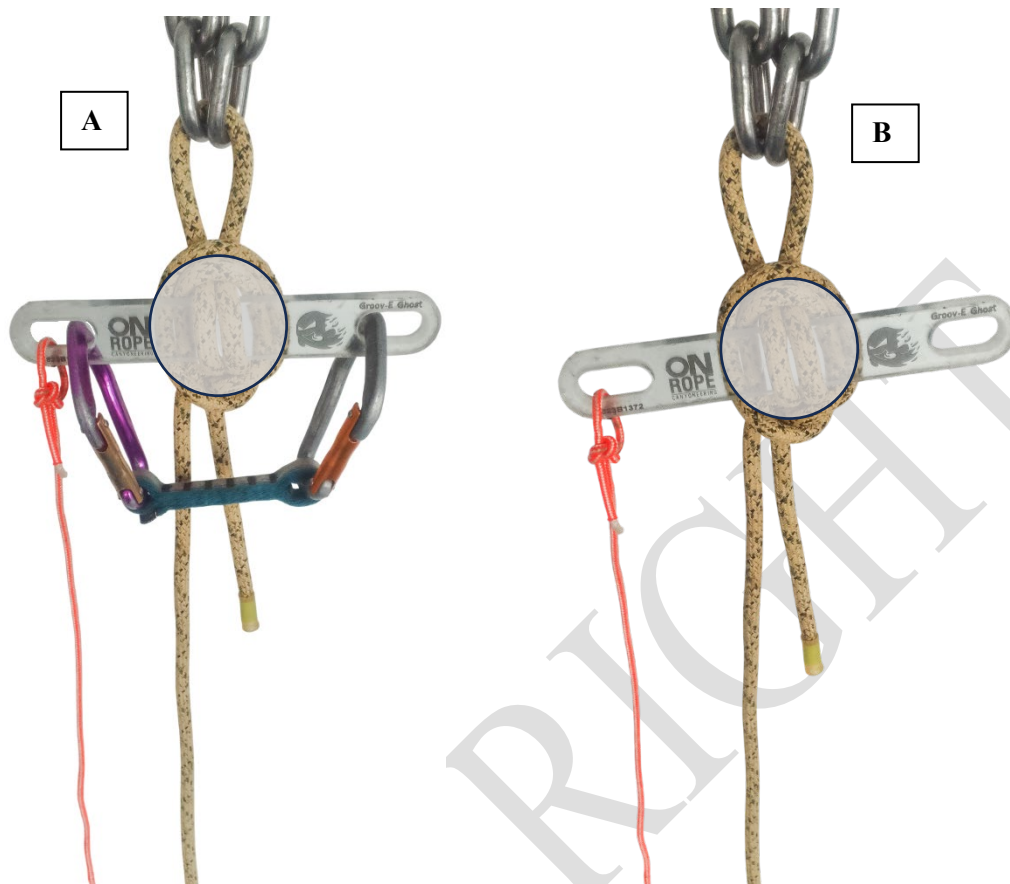
- Q16. For the purposes of this question, assume you are going to rely on a 'Fiddlestick' system.
Should you carry a spare 'Fiddlestick' + pull cord in case it breaks or gets stuck during free-fall? (eg tangled around vegetation)

☐ Yes ☐ No

Justify your answer:

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- Q17. Study the images below. A decision has been made to use a 'Fiddlestick'. Some people add a blocking mechanism to prevent the 'Fiddlestick' from accidentally slipping out. Answer the questions below.



Q17a Which configuration is required for the last person to descend (A or B)?

☐

A

☐

B

Q17b In a group situation, who stands to benefit most from using the blocking mechanism?

Q17c Does the last person to descend benefit from the blocking mechanism?

☐

Yes

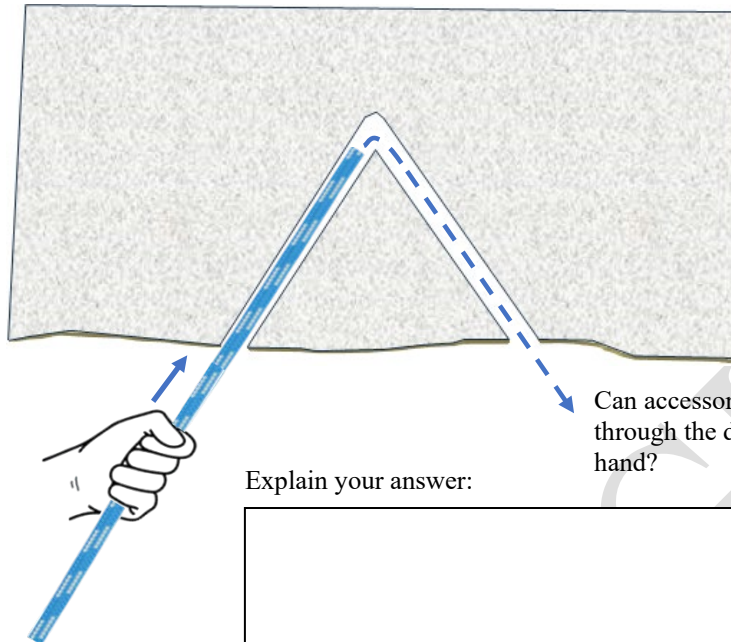
☐

No

Q17d Make your best argument for using a blocking mechanism with a Fiddlestick anchor:

- Q18. This question is about Abalakov threads. Study the image carefully.
Is it possible to push the accessory cord all the way through by hand so it exits through the hole on the other side?

☐ Yes ☐ No

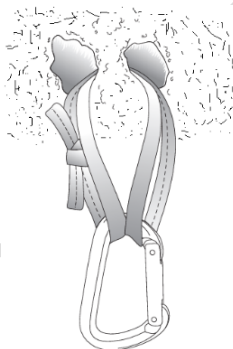


Can accessory cord be pushed through the drilled holes by hand?

Explain your answer:

- Q19. What is the principal difference between these two threads? Is one type better than the other?

A



B



Explain your answer:

- Q20. Is an Abalakov thread less invasive to the natural canyon environment in comparison to permanently installed bolts?

☐ Yes ☐ No

Explain your answer:

Q21. This question refers to naturally occurring anchors.

Existing trees are commonly used by canyons for anchoring their rope(s).
How do you arrive at a decision to trust your life to any given tree in a canyon?
List as many selection criteria that you can think of...

Note: Your answers must be coherent and distinct from one another.



List your selection criteria for trees:

1	
2	
3	
4	
5	
6	

Q22. You come across abandoned in-situ slings around a tree (evidence that other people have been here before). The slings appear to be old – but you have no way of verifying their age and condition. You need an anchor to descend and continue through the canyon. What action would you take?

Note: Assume the tree is a solid and reliable anchor for the purposes of this question. There is no other suitable tree in the vicinity – this is the only tree and way forward.

Explain your answer:

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Q23. This question refers to removable climbing protection devices (wired nuts).
Should all canyons carry and be able to use wired nuts?

☐ Yes ☐ No



Justify your answer:

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- Q24. This question refers to bolts. Study the images carefully. Both bolts are 8.0mm diameter. You have made the decision to install a bolt. List the advantages and disadvantages for each bolt design type. List as many as you can think of...

Legal Note: As a general rule, installation of permanent bolts in national parks is prohibited. This question assumes that you either have obtained permission or you have a reasonable excuse.

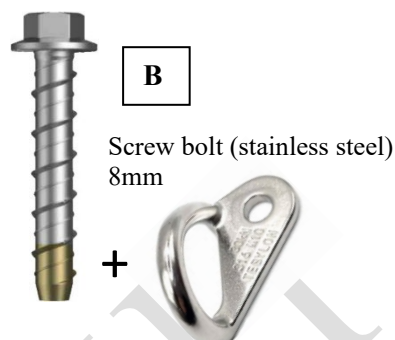


Advantages:

1	
2	
3	

Disadvantages:

1	
2	
3	



Advantages:

1	
2	
3	

Disadvantages:

1	
2	
3	

- Q25. This question refers to the bolts shown in the above question. Make your best 'use case' for installing these types of bolts in a canyon environment. That is, under what circumstances would these types of bolts be useful in a canyon?

Explain your answer:

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- Q26. This question refers to specialist canyoning ropes.
What manufacturing standard do the following specialist **8.0mm** canyoning ropes conform to? Note: In order to answer this question, you must first understand what a 'standard' is.



Bluewater USA
Canyon Pro 8.0mm
22.2 kN

What standard does
this rope conform to?



Sterling USA
CanyonLux 8.0mm
24.2 kN

What standard does
this rope conform to?



Glacier Black USA
B-52 Ghost 8.0mm
23 kN

What standard does
this rope conform to?

- Q27. TRUE or FALSE:
Any canyoning rope that is less than 8.5mm will not conform to **EN 1891**.

☐

True

☐

False

- Q28. Some rope manufacturers are using Ultra High Molecular Weight Polyethylene (UHMWPE) such as 'dyneema' and 'spectra' - and Aramid fibres such as 'technora' and 'kevlar'.
What is the difference between UHMWPE and ARAMID?

UHMWPE:

ARAMID:

- Q29. What is the difference between low stretch rope and static rope?

Low stretch rope:

Static rope:

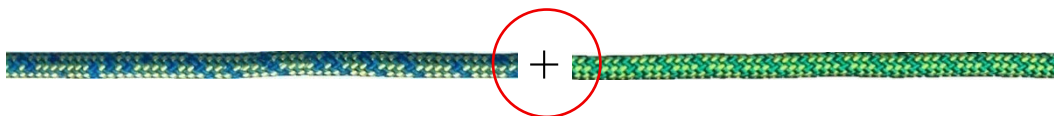
- Q30. What is the maximum theoretical lifespan of a canyoning rope?

years

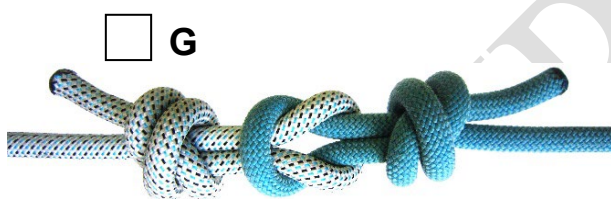
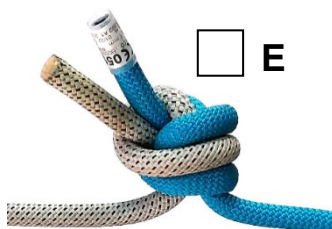
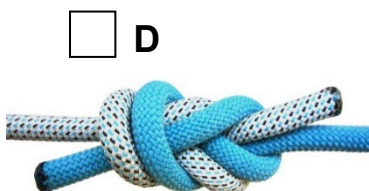
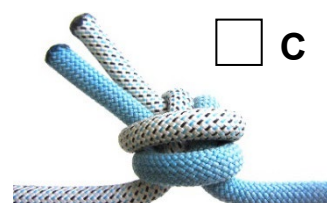
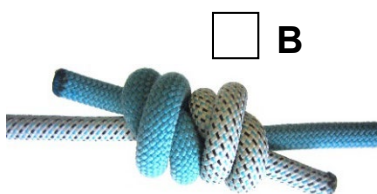
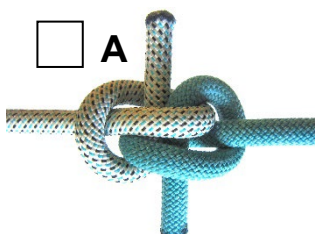
- Q31. Under what circumstances would you retire a canyoning rope (ie stop using it)?
Explain your answer:

- Q32. This question is about canyoning ropes.
What do you consider to be the optimal rope diameter for canyoning?

- Q33. You need to join two canyoning ropes together to increase the overall length.
Choose the joining knot (ie 'bend') you consider to be optimal.
Note: Knots are shown in two tone colour with short tails to aid in identification.

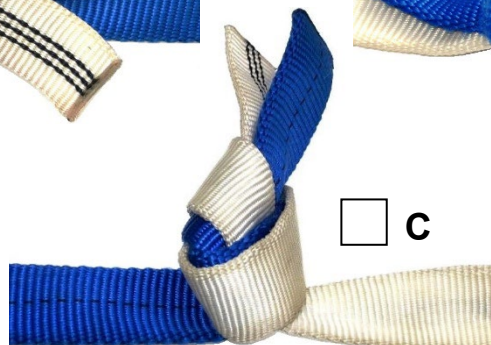
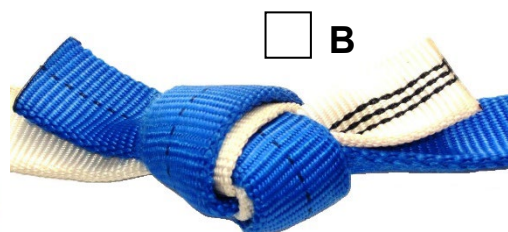
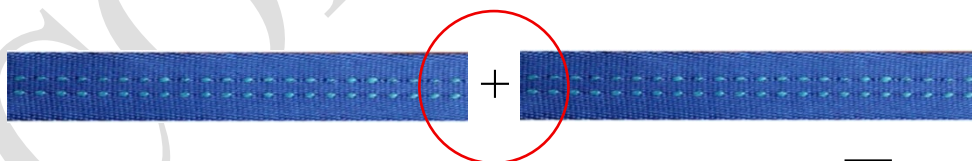


Enter name of knot you chose:



Make your best argument to justify your choice:

- Q34. You need to join two ends of webbing (tape) to form a round sling.
Choose the joining knot ('bend') you consider to be stable, secure, and optimal.
Note: The choices are shown in bi-colour for ease of identification.



Q35. Choose the diagram you believe is showing the correct geometry and orientation of a Munter hitch (Italian hitch).

☐ **A**



☐ **B**



☐ **C**



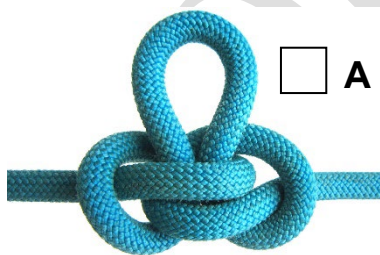
Q35a Should all canyoning Guides be competent in tying and using a Munter hitch?

☐ Yes ☐ No

Make your best argument why a Canyon Guide should be able to tie a Munter hitch:

Q36. Choose the diagram you believe is showing the correct geometry of a Butterfly knot.

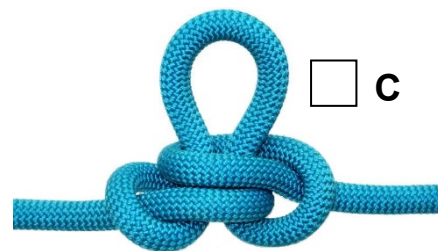
☐ **A**



☐ **B**



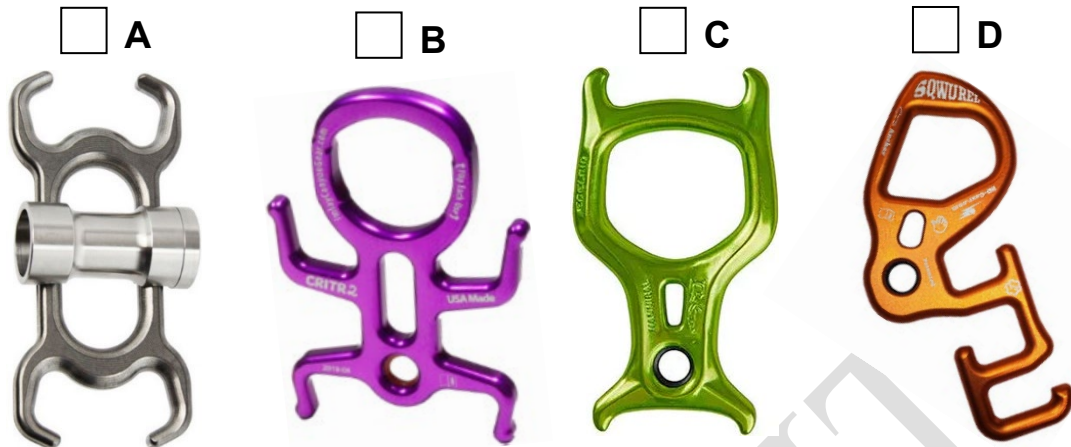
☐ **C**



Q36a Why is a Butterfly knot useful in canyoning? Why should you know how to tie it?

Explain your answer:

- Q37. You will be performing a deep water entry (plunging directly into very deep water). Choose the descent device that is optimal for this type of situation.



Justify your answer:

- Q38. Study the image carefully. Do you notice anything?
Is it safe to continue using this product?

☐ **Yes** ☐ **No**



Explain your answer:

- Q39. Canyoning descent devices generally have extensions ('arms' and/or 'horns') projecting from the main body of the device. What is the purpose of these extensions?

Explain your answer:



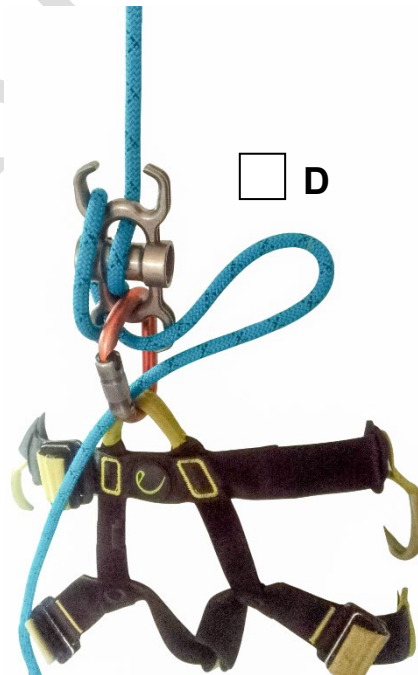
What is the purpose of these parts?

- Q40. This question refers to the Kong 'Hydrobot' descending device. A known risk is the rope rolling off the 'horn' – resulting in a sudden loss of friction. A person must diligently maintain control at all times during the descent. Choose the configuration you believe minimizes risk for people with less experience.



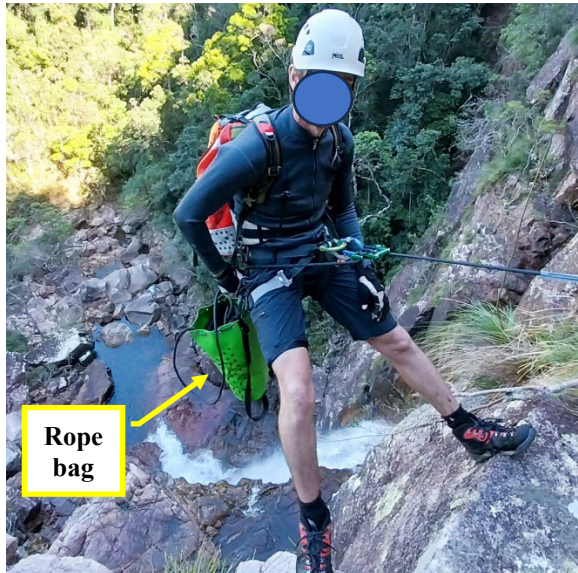
Justify your answer:

- Q41. You need to stop half-way down a pitch and go hands-free to sort out an issue. Choose the tie-off method you believe is most stable and secure.



Justify your answer:

- Q42. Study the photo carefully.
The person is descending with the rope bag attached to his harness.
The rope progressively deploys out-of-the-bag as he descends. What is the reasoning behind the decision to descend in this way?
Why not just throw the rope bag to the bottom?



Make your best argument for descending with the rope bag:

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- Q43. Study the photo carefully. You are Guiding a client in a canyon with flowing water.
The client is descending through a narrow passage and will be entering deep water in a chamber below. On this occasion, the water flow level was minimal.
As a professional Guide, what type of rescue skills do you need for this canyon environment?

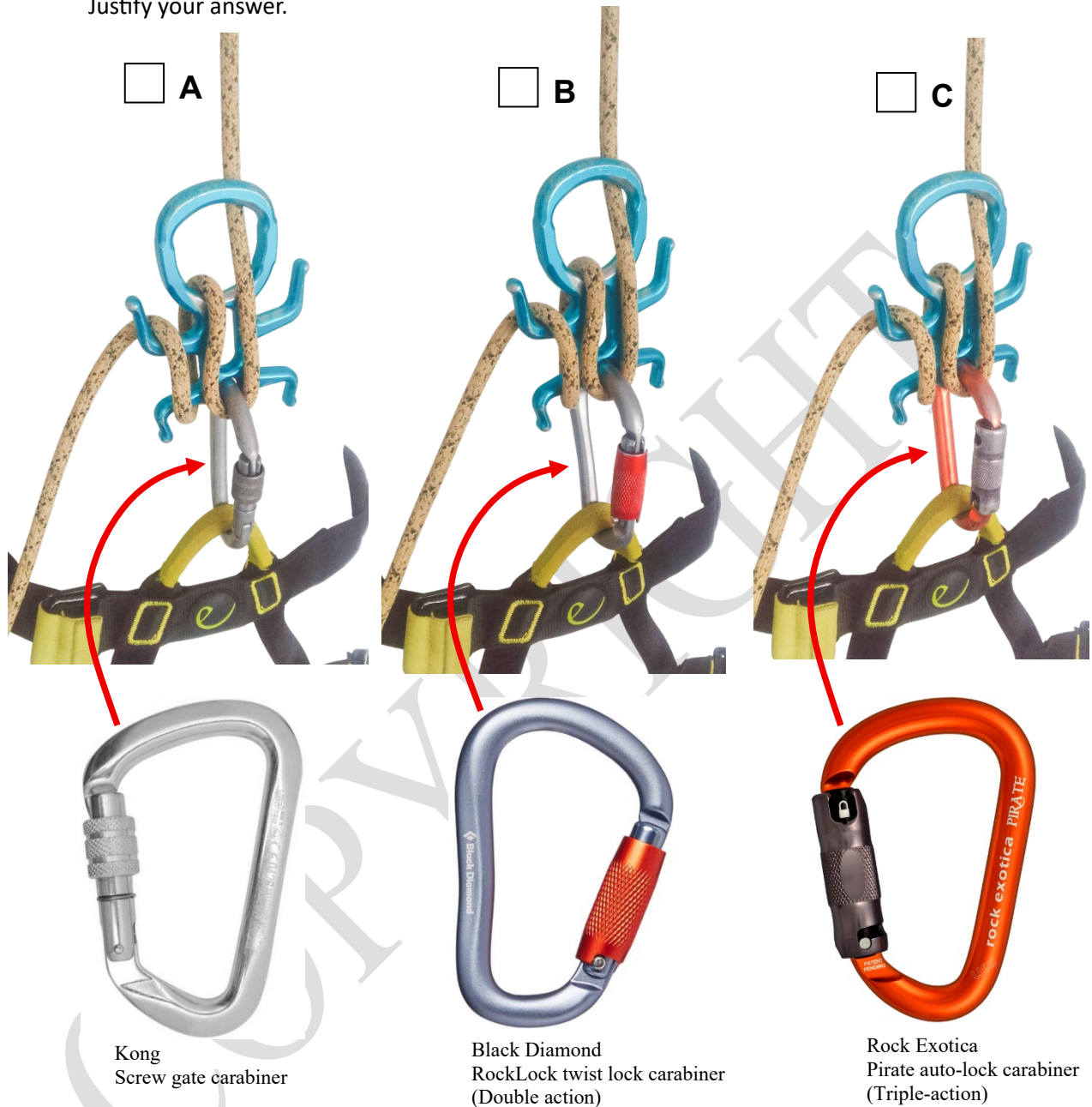


List as many different types of rescue skills you can think of:

1	
2	
3	
4	
5	
6	

Q44. Study the images carefully. Choose the type of connector (ie carabiner) you believe is optimal for attaching this type of descending device to your harness.

Note: Consider that there is always the possibility of a deep water entry, and swim.
Justify your answer.



Justify your answer:

Q45. What is the maximum theoretical lifespan of a carabiner?

 years

Q46. This question is about harnesses.
Choose the harness design you believe is optimal for canyoning.
Justify your choice.

☐ A



☐ B



☐ C



☐ D



☐ E



☐ F

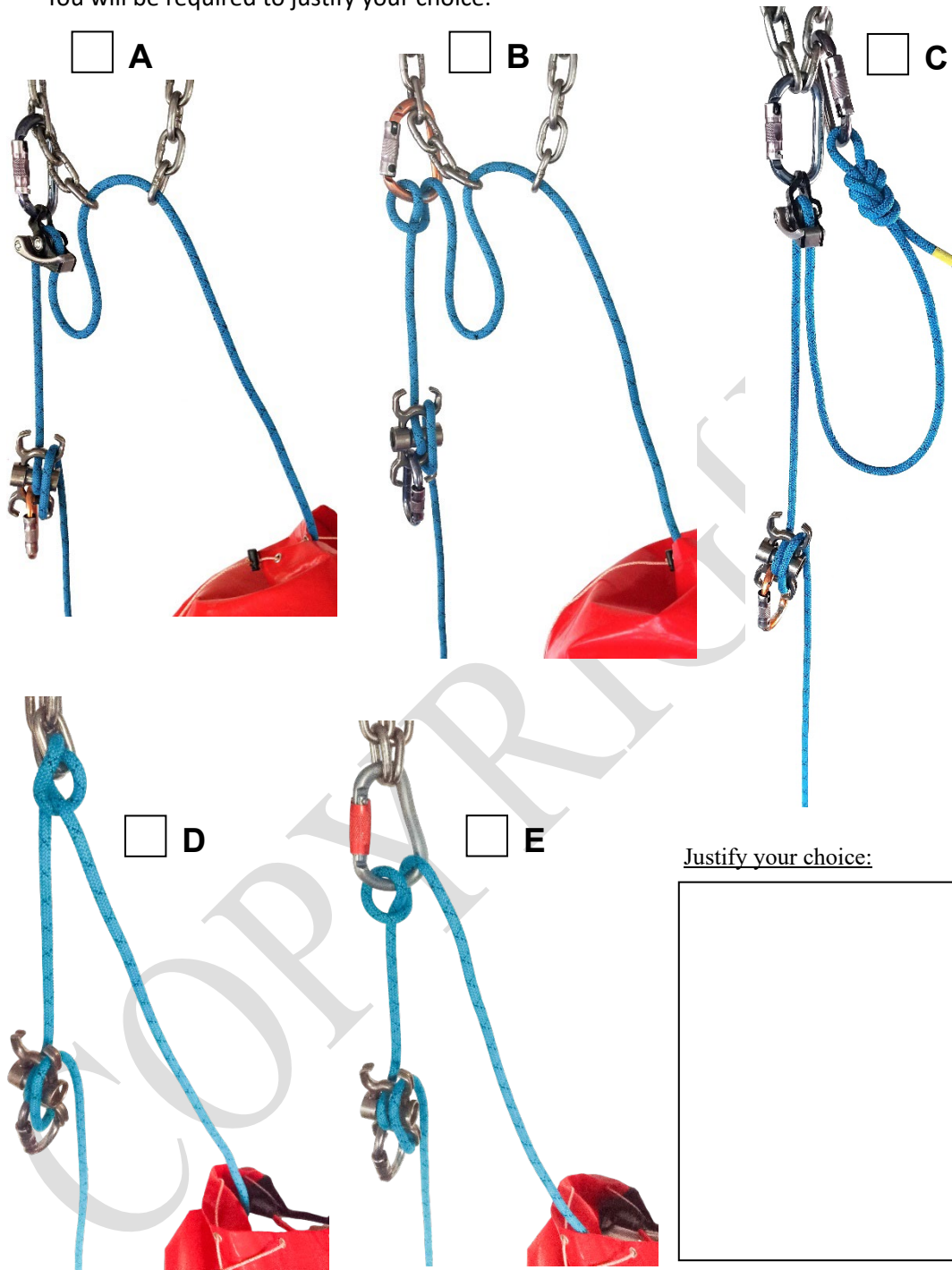


Justify your answer:

Q47. What is the maximum theoretical lifespan of a harness?

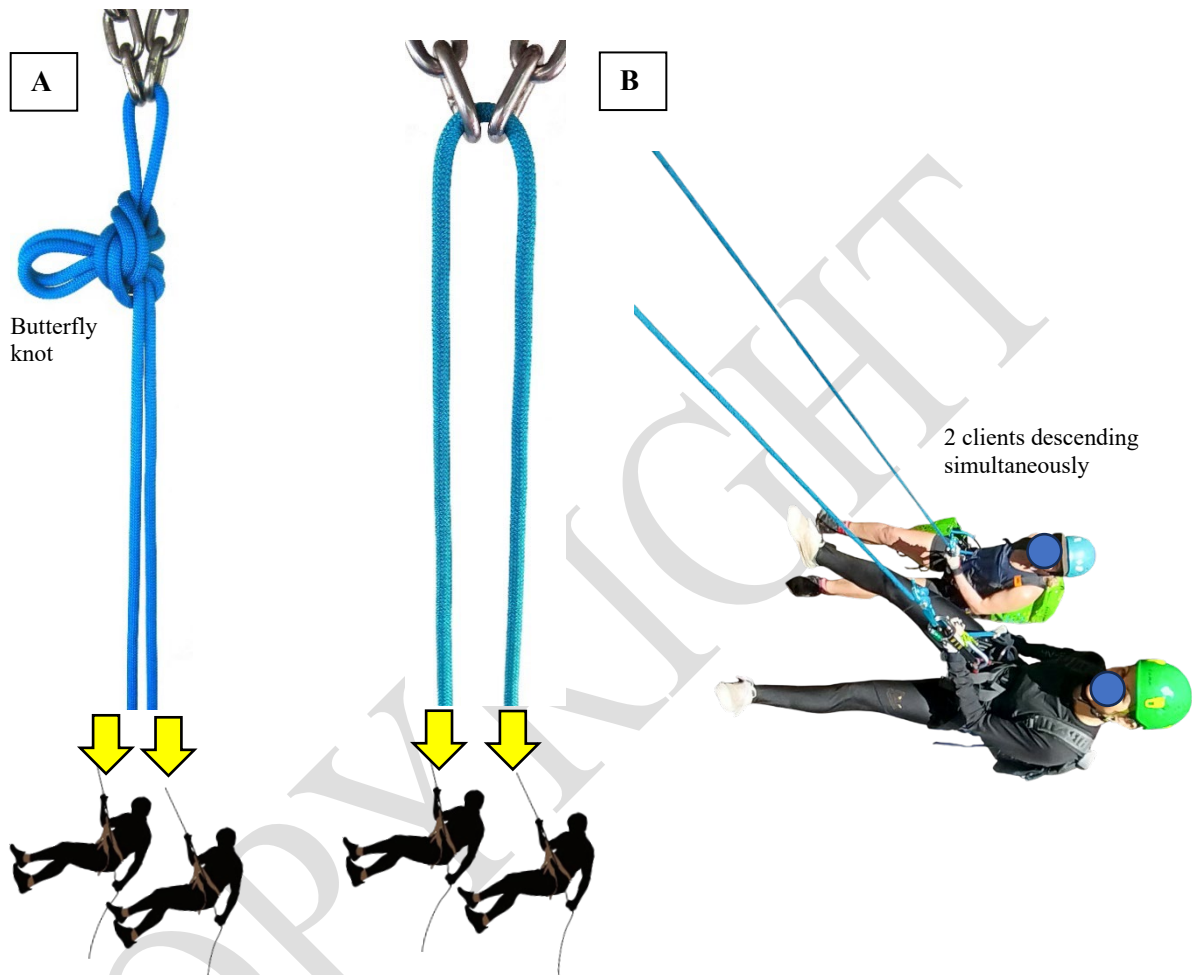
years

- Q48. You need to rig a system that enables a person to be lowered while descending (while the system is under load). Choose the configuration you believe is optimal for this purpose. You will be required to justify your choice.



- Q49. Make your best argument for why a lowering system might be needed in a canyon.

- Q50. Study the images carefully. You hold a certification as a professional Guide. You are Guiding two people in a canyon. They have some prior abseiling experience, but they don't know how to setup anchors or perform rescues. You have made a decision to do simultaneous abseil descents – both clients will descend simultaneously. Once they are both down, then you will descend.
- Answer the questions below.



Q50a Which configuration do you believe is optimal given the client experience level?

☐

A

☐

B

Q50b What principle does configuration 'B' depend on? Are there any potential risks involved with using configuration 'B'? Explain:

Q50c Make your best argument for why a Guide might want to implement simultaneous descents.

Final score _____

IMPORTANT!

Save your work – make sure all data fields are populated with your answers.

If you close without saving, you might lose all of your work...

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 my exam score is an indication of my current knowledge about canyoning. I acknowledge that my health and safety, and the safety of others may depend on my knowledge and understanding of canyoning.

Student signature: _____

Date: _____