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# CLAT 2024 **RANBHOOMI** *THE FINAL SPRINT*

— THE CLAT COMBAT —  
**THE LOGIC PRO**



**LOGICAL REASONING**

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## THE CLAT COMBAT

### Logical Reasoning 4

Studies of the Weddell seal in the laboratory have described the physiological mechanisms that allow the seal to cope with the extreme oxygen deprivation that occurs during its longest dives, which can extend 500 meters below the ocean's surface and last for over 70 minutes. Recent field studies, however, suggest that during more typical dives in the wild, this seal's physiological behaviour is different.

In the laboratory, when the seal dives below the surface of the water and stops breathing, its heart beats more slowly, requiring less oxygen, and its arteries become constricted, ensuring that the seal's blood remains concentrated near those organs most crucial to its ability to navigate underwater. The seal essentially shuts off the flow of blood to other organs, which either stop functioning until the seal surfaces or switch to an anaerobic metabolism. The latter results in the production of large amounts of lactic acid which can adversely affect the pH of the seal's blood, but since the anaerobic metabolism occurs only in those tissues which have been isolated from the seal's blood supply, the lactic acid is released into the seal's blood only after the seal surfaces, when the lungs, liver, and other organs quickly clear the acid from the seal's bloodstream.

Recent field studies, however, reveal that on dives in the wild, the seal usually heads directly for its prey and returns to the surface in less than twenty minutes. The absence of high levels of lactic acid in the seal's blood after such dives suggests that during them, the seal's organs do not resort to the anaerobic metabolism observed in the laboratory, but are supplied with oxygen from the blood. The seal's longer excursions underwater, during which it appears to be either exploring distant routes or evading a predator, do evoke the diving response seen in the laboratory. But why do the seal's laboratory dives always evoke this response, regardless of their length or depth? Some biologists speculate that because in laboratory dives the seal is forcibly submerged, it does not know how long it will remain underwater and so prepares for the worst.

1. The passage provides information to support which of the following generalizations?
  - (a) Observations of animals' physiological behaviour in the wild are not reliable unless verified by laboratory studies.
  - (b) The level of lactic acid in an animal's blood is likely to be higher when it is searching for prey than when it is evading predators.
  - (c) The level of lactic acid in an animal's blood is likely to be lowest during those periods in which it experiences oxygen deprivation.
  - (d) The physiological behavior of animals in a laboratory setting is differs from their physiological behaviour in the wild.
2. It can be inferred from the passage that by describing the Weddell seal as preparing "for the worst" , biologists mean that it
  - (a) prepares itself to remain underwater for more than twenty minutes.
  - (b) exhibits physiological behaviour similar to that during which it heads directly for its prey.
  - (c) exhibits physiological behaviour similar to its longest dives in the wild.
  - (d) begins to exhibit predatory behaviour.
3. The passage suggests that during laboratory dives, the pH of the Weddell seal's blood is not adversely affected by the production of lactic acid because
  - (a) the heart beats slow down with the constriction of arteries.
  - (b) the seal typically reverts to an anaerobic metabolism only at the very end of the dive.
  - (c) organs that revert to an anaerobic metabolism are temporarily isolated from the seal's bloodstream.
  - (d) oxygen continues to be supplied to organs that clear lactic acid from the seal's bloodstream.
4. Which of the following best summarizes the main point of the passage?
  - (a) Recent field studies have indicated that descriptions of the physiological behaviour of the Weddell seal during laboratory dives are inconsistent to its most typical dives in the wild.
  - (b) The Weddell seal has developed a number of unique mechanisms that enable it to remain submerged at depths of up to 500 meters for up to 70 minutes.
  - (c) The results of recent field studies have driven biologists to revise previous perceptions of the physiological behaviour of Weddell seals during its longest dives in the wild.
  - (d) it is speculated that laboratory studies of the physiological behaviour of seals during dives lasting more than twenty minutes would be more accurate if the seals were not forcibly submerged.

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5. According to the author, which of the following is true of the laboratory studies mentioned

- (a) They are unable to explain how the seal tolerates the increased lactic acid by organs that take to an anaerobic metabolism during its longest dives in the wild
- (b) They provide evidence that weakens the view that the seal relies on an anaerobic metabolism during its most typical dives in the wild.
- (c) They are based on the assumption that Weddell seals do not spend more than twenty minutes underwater on a typical dive in the wild.
- (d) They provide an accurate account of the physiological behaviour of Weddell seals during those dives in the wild in which they are either evading predators or exploring distant routes.

6. The passage suggests that because Weddell seals are forcibly submerged during laboratory dives, they do which of the following?

- (a) Display the physiological responses that are typical of dives in the wild that last less than twenty minutes
- (b) Exhibit the physiological responses that are characteristic of the longer dives they undertake in the wild.
- (c) Unable to cope with oxygen deprivation unlike as they do on typical dives in the wild.
- (d) Produce smaller amounts of lactic acid as compared to what they do on typical dives in the wild.

**1. Ans: (d)**

Sol: Option (d) is correct. It is understood from the first paragraph.

**2 Ans: (c)**

Sol: Option (c) is correct. It is understood from the last three lines of the last paragraph.

**3. Ans: (c)**

Sol: Option (c) is correct. It is understood from the second paragraph last few lines and the third paragraph first few lines.

**4. Ans: (a)**

Sol: Option (a) is correct. It comes as a statement of all the important points of the passage given by the author.

**5. Ans: (d)**

Sol: Option (d) is correct. It is understood from the first paragraph of the passage.

**6. Ans: (b)**

Sol: Option (b) is correct. It is understood from the first and the second paragraphs.