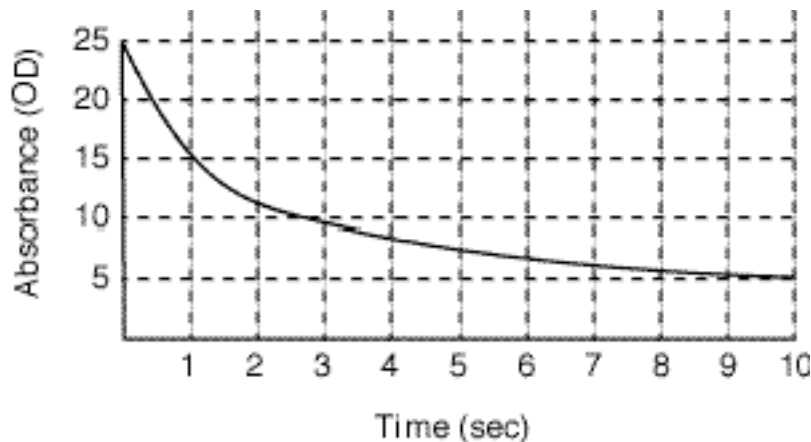


Please Note: These questions were written by me. Any resemblance to past, present or future exam questions is purely coincidental. The exam has not yet been written and I will not be the author. These questions are intended to give you some idea of the style of questions that I am guessing you might see on the exam. They do not by any means cover the range of possible questions on the exam. Also note that you are likely to encounter a limited number of “practical” style questions (hands-on with the computer) during the exam. (Note: If you find an error please e-mail me at leif.saul@colorado.edu.)

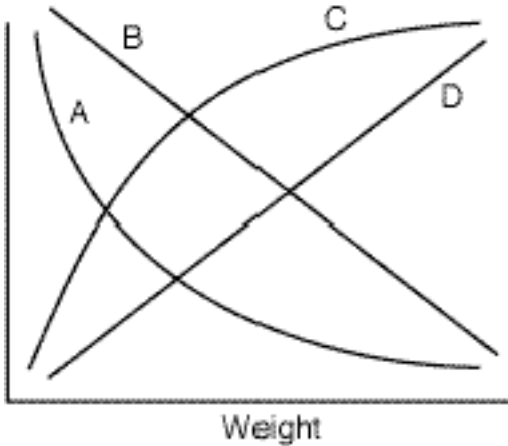


1. The graph above shows the results for an MDH assay in the enzyme lab. In the lab you went through a simple procedure to measure the enzyme activity from graphs like this one. Going through the same procedure without using the computer, you can see clearly from this graph that the enzyme activity is

- a) 5 OD
- b) 25 OD
- c) 10 OD/sec
- d) 5 OD/sec
- e) 2.5 OD/sec

2. MDH is an enzyme that

- a) Is more abundant in fast-twitch than slow-twitch muscle fibers
- b) Converts pyruvate to lactate
- c) Converts lactate to pyruvate
- d) Is necessary for the Krebs Cycle to operate
- e) None of the above



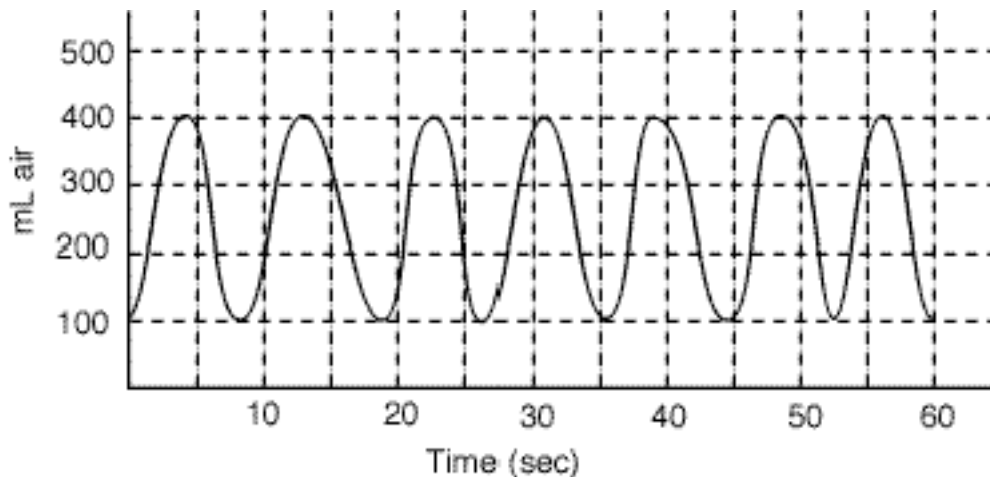
3. The graph above shows four possible allometric relationships between body weight and another variable. Fill in the blanks:

Graph ___ shows the predicted relationship between M_{O_2} and body weight.

Graph ___ shows the predicted relationship between V_{O_2} and body weight.

Graph ___ shows the predicted relationship between $\log M_{O_2}$ and \log body weight.

Graph ___ shows the predicted relationship between $\log V_{O_2}$ and \log body weight.

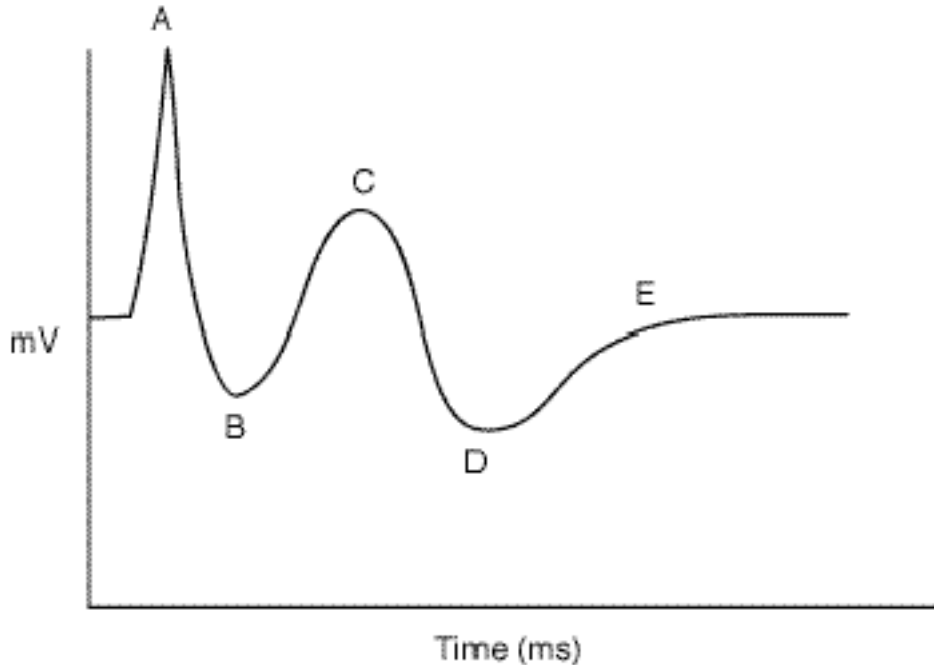


4. The graph above shows the result from a spirometry test. What is the value of V_{ATP} ?

- a) 300 mL air/min
- b) 400 mL air/min
- c) 700 mL air/min
- d) 2100 mL air/min
- e) 2400 mL air/min

5. The method you used to measure metabolic rate in the laboratory was

- a) Open-circuit spirometry and indirect calorimetry
- b) Open-circuit spirometry and direct calorimetry
- c) Closed-circuit spirometry and indirect calorimetry
- d) Closed-circuit spirometry and direct calorimetry



6. The above figure shows a result in the Isolated Peripheral Nerve lab.

i. Which portion of the curve (A, B, C, D or E) corresponds to the detection of the Compound Action Potential by the first (positive) recording electrode? _____.

(This was changed 4/14/06, 4:35 pm)

ii. Briefly explain what causes the peak at point A:

7. Compared to the measured conduction velocity of a very small CAP, the measured conduction velocity of a very large CAP is likely to be

- a) Faster
- b) Slower
- c) The same
- d) Either faster or slower, depending on the direction the nerve is placed in the chamber

8. Tetanic contractions

- a) Occur primarily in fatigued muscles
- b) Occur primarily in a diseased condition
- c) Achieve higher tension than a twitch contraction
- d) Require a higher stimulus voltage than a twitch contraction

ANSWERS:

1. c
2. d
3. C, A, D, B
4. d
5. a
6. i. C (This was corrected 4/14/06, 4:35 pm)
6. ii. Stimulus artifact (recording electrodes detecting the stimulus directly)—a purely electrical event.
7. b
8. c