

A few example multiple choice questions:

- 1) What is the charge on the following peptide at pH 7? DWLFTTPLLILLDLALLVD
- A) +3
 - B) +2
 - C) +1
 - D) 0
 - E) -1
 - F) -2
 - G) -3
- 2) Which one of the following is false about Watson-Crick base pairs in DNA?
- A) U pairs with A and G pairs with C.
 - B) A purine in one strand always hydrogen bonds with a pyrimidine in the other strand.
 - C) A–T pairs share two hydrogen bonds.
 - D) G–C pairs share three hydrogen bonds.
 - E) the bases occupy the interior of the helix.
- 3) The conversion of 1 mol of glucose to 2 mol of 2-phosphoglycerate by the glycolytic pathway results in a net formation of:
- A) 2 mol of NADH and 2 mol of ATP.
 - B) 1 mol of NADH and 1 mol of ATP.
 - C) 1 mol of NADH and 0 mol of ATP.
 - D) 2 mol of NADH and 1 mol of ATP.
 - E) 2 mol of NADH and 0 mol of ATP.
 - F) 1 mol of NADH and 2 mol of ATP.

A couple examples of short answer questions:

4. The Warburg effect in cancer refers to the fact that cancer cells produce most of their energy by glycolysis, rather than by oxidative phosphorylation in the mitochondria. Briefly explain in terms of metabolic pathways why this accounts for the fact that solid tumors almost always have an acidic environment.
5. A scientist obtains the following set of data for an enzyme that is known to follow Michaelis-Menten kinetics. (remember to show work if you want it consideration for partial credit)

Substrate concentration (mM)	Initial velocity (mmol/min)
0.5	49
1	96
4	349
25	621
50	676
500	698
2500	699

- (a) V_{\max} for the enzyme is about _____.
- (b) K_m for the enzyme is about _____.