1. One of the enzymes involved in glycolysis, aldolase, requires $Zn^{2+}$ for catalysis. Under conditions of zinc deficiency, when the enzyme may lack zinc, it would be referred to as the:

a. holoenzyme

b. prosthetic group

c. apoenzyme

d. coenzyme

e. substrate

2. The concept of “induced fit” refers to the fact that:

a. when a substrate binds to an enzyme, the enzyme induces a loss of water (desolvation) from the substrate.

b. substrate binding may induce a conformational change in the enzyme, which then brings catalytic groups into proper orientation.

c. enzyme-substrate binding induces an increase in the reaction entropy, thereby catalyzing the reaction.

d. enzyme specificity is induced by enzyme-substrate binding.

e. enzyme-substrate binding induces movement along the reaction coordinate to the transition state.

3. Which of the following statements about a plot of V0 vs. [S] for an enzyme that follows Michaelis-Menten kinetics is false?

a. Km is the [S] at which V0 = ½ Vmax.

b. The shape of the curve is a hyperbola.

c. The y-axis is a rate term with units of μm/min.

d. As [S] increases, the initial velocity of reaction, V0, also increases.

e. At very high [S], the velocity curve becomes a horizontal line that intersects the y-axis at Km.

4.In competitive inhibition, an inhibitor:

a. binds at several different sites on an enzyme.

b. binds reversibly at the active site.

c. binds only to the ES complex.

d. binds covalently to the enzyme.

e. lowers the characteristic Vmax of the enzyme.

5. Which of these statements about the composition of membranes is generally true?

a. The lipid composition of all membranes of eukaryotic cells is essentially the same.

b. All biological membranes contain cholesterol.

c. Free fatty acids are major components of all membranes.

d. The inner and outer membranes of mitochondria have different protein compositions.

6.The fluidity of a lipid bilayer will be increased by:

a. decreasing the number of unsaturated positions.

b. increasing the length of the alkyl chains.

c. increasing the temperature.

d. decreasing the temperature.

7.Which of the following statements is not indicative of passive transport?

a. No energy is required.

b. ATP is required for transport.

c. Small organic molecules will diffuse based on molecular weight and solubility in lipids.

d. Molecules are transported from high concentration to low concentration.

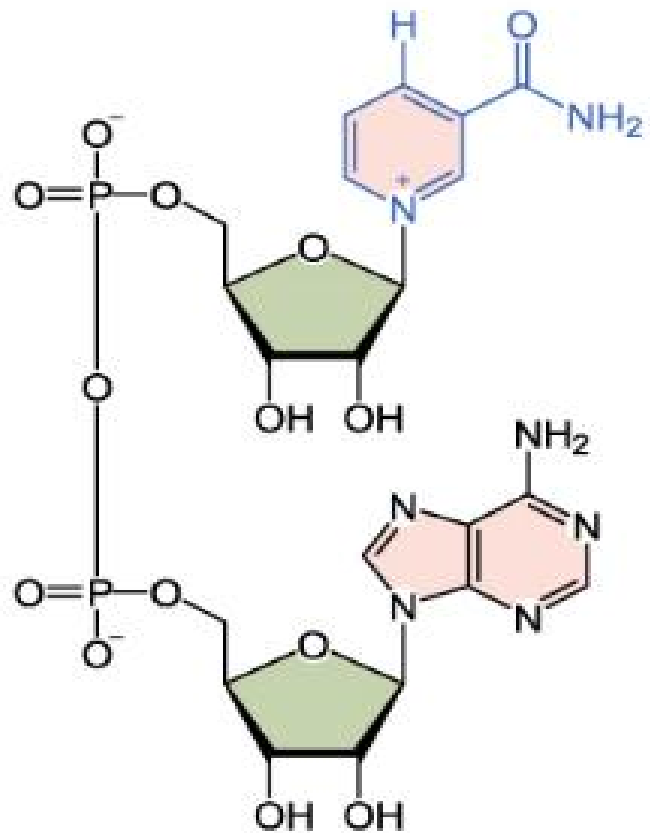
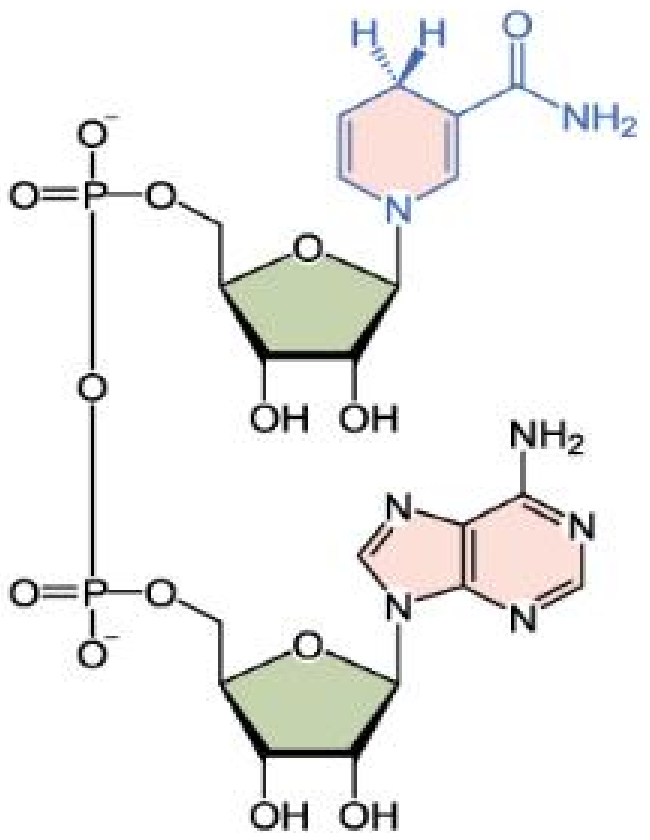
8. The conversion of NAD+ to NADH is an example of reduction because

a. the pyridine ring loses electrons (and a hydrogen).

b. the pyridine ring gains electrons (and a hydrogen).

c. the adenine ring loses electrons.

d. the adenine ring gains electrons

| $NAD^+$ | NADH |
| --- | --- |
|  |  |

9. The process of glycolysis

a. requires a pathway of chemically coupled phosphoryl-transfer reactions

b. uses 2 ATP molecules and forms 2 ATP molecules and one NADH molecule.

c. occurs in the mitochondria.

d. converts glucose into two glycerate molecules.

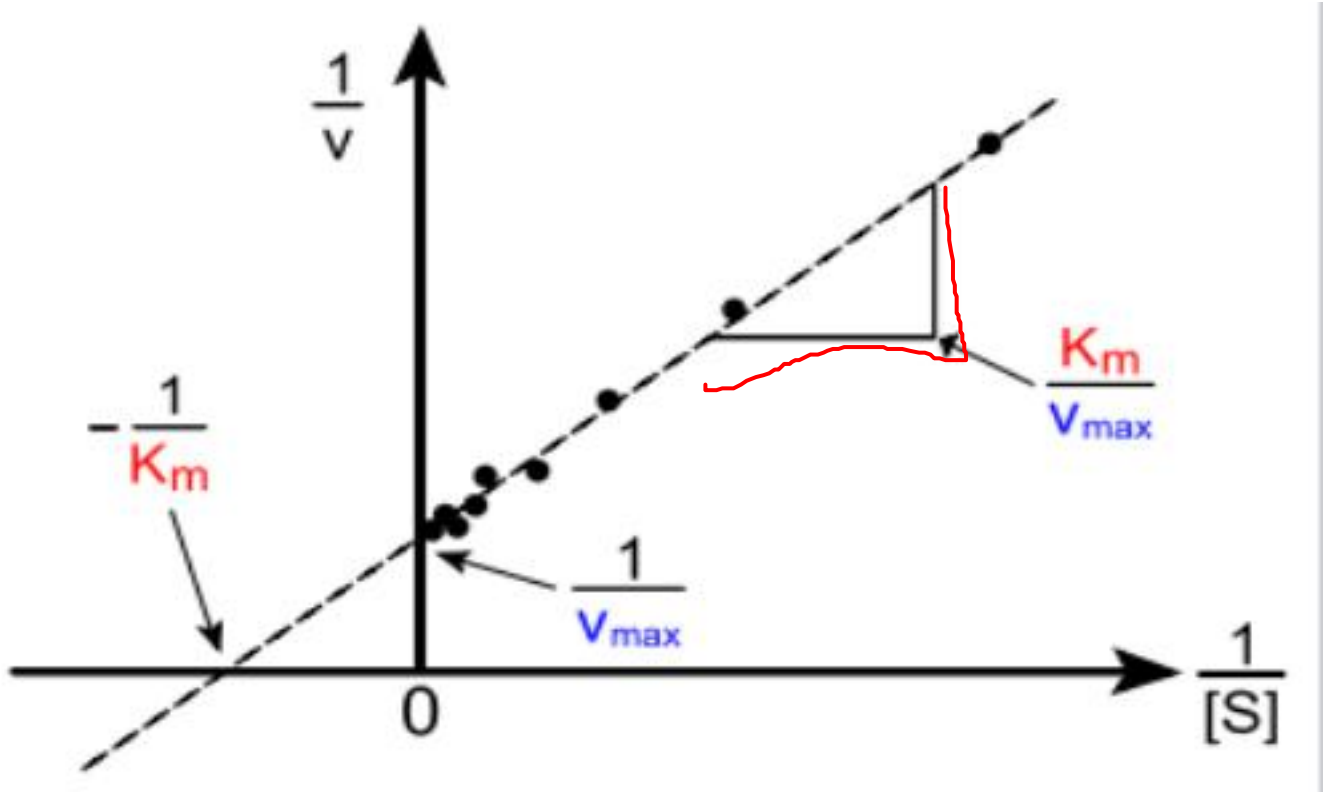
The slope of Lineweaver Burk plot for Michaelis Menten equation is……

**a.**Vmax/Km

**b.**Km/Vmax

**c.**1/Km

**d.**Km.Vmax


1/v
-1/Km
1/Vmax
Km/Vmax
0
1/[S]

**The initial velocity, V0, of an enzyme catalyzed reaction reaches Vmax as**

**a.** [S] = KM

**b.** [S] = 10 * KM

**c.** 1/[S] = 1/KM

**d.** 1/[S] → 0

In non-competitive inhibition, the quantity which remains same as the reaction proceed is

A. $V_{max}$

B. $K_m$

C. $K_o$

D. $V_o$

A competitive inhibitor has the following effect on a Limeweaver-Burke (double reciprocal) Plot.

a. It moves the entire curve to the right.
b. It moves the entire curve to the left.
c. It changes the y-intercept.
d. It changes the x-intercept
e. It has no effect on the slope.