Multiple Choice:

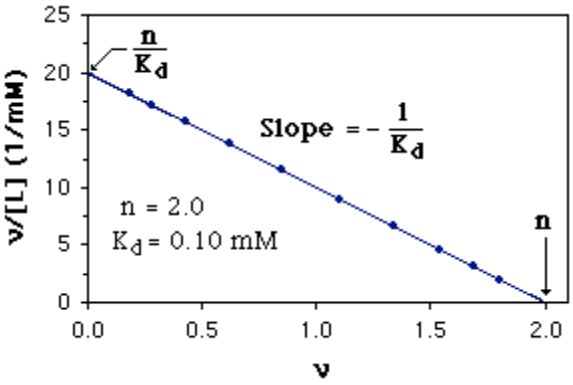
1. A protein that binds two ligands in a non-cooperative manner will:
a) show a hyperbolic binding curve.
b) show a curved Scatchard Plot
c) show a curved Hill Plot.
d) show a sigmodial binding curve
2. Once a ligand dissociation constant (KD) has been determined it is possible to calculate:
a) the ligand binding constant (Ka).
b) the DGo for the binding interaction.
c) the concentration of ligand required for half-maximal occupancy
d) All of the above are correct
3. In both hemoglobin and myoglobin the oxygen is bound to:
a) the nitrogen atoms on the heme.
b) polar pocket in the protein.
c) histidine residues in the protein.
d) The iron atom in the heme group.

Scatchard Plot Fill-In:

The Scatchard equation is:

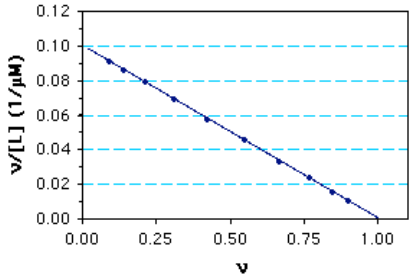
□ =
L =
n =
$\mathbf{K_d}$ =

Label the locations of -1/Kd, n, and n/Kd on this curve and calculate Kd and

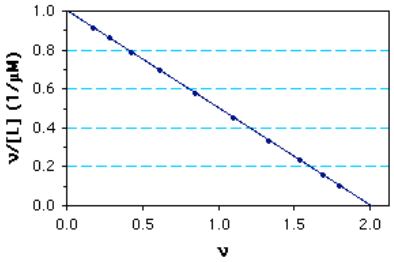


n.

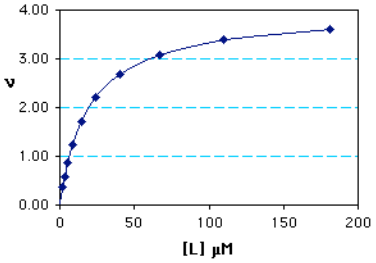
Ligand Binding Curve Problems:



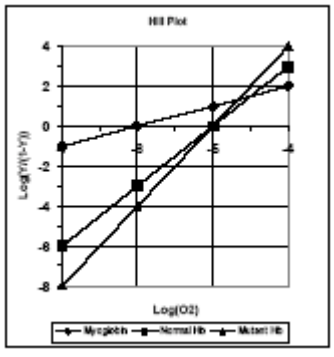
What Type of plot?
N=
Kd =



Type of Plot:
N=
Kd=



Type of Plot?
n=
Kd=



Hill Plot problem:

Determine the Hill coefficient and Kd for the mutant hemoglobin. Please describe your approach