Enzymology

Effect of inhibitors on enzymatic reactions

The following reaction is catalyzed by the enzyme catalase: $2H_2O_2 \rightarrow 2H_2O + O_2$

In a series of experiments examining the effect of inhibitors on catalase activity you obtain the following results (assuming [catalase] remains constant).

[INHIBITOR] (M)	**CATALASE ACTIVITY (mean±sd O_2 ml/s)**		
	Substrate (H_2O_2) concentrations		
	0.20 M	**0.40 M**	**0.80 M**
No inhibitor	0.89±0.07	1.65±0.13	2.97±0.28
Copper sulphate **0.06**	0.88±0.07	1.61±0.11	2.97±0.27
0.31	0.42±0.03	0.52±0.03	0.54±0.04
0.62	0.11±0.01	0.13±0.02	0.09±0.01
Cyanide (hydrogen cyanide) **0.04**	0.89±0.08	1.64±0.13	3.01±0.28
0.16	0.400±0.04	1.21±0.09	2.31±0.19
0.40	0.09±0.01	0.98±0.08	1.89±0.20

1. Draw 2 graphs that show, in the most appropriate way, the effect of these 2 types of inhibitors on catalase activity. Label your graphs appropriately.

2. What type of enzyme inhibition is supported by the above results for copper sulphate? Cyanide? Explain.