ENZYME CATALYSIS
PRE-LAB

Name: _____ Date: _____

Total Points: 35 Due Date: _____

1. What is the function of catalase in cells? (1 point)
2. Write the equation for the reaction catalyzed by catalase. (2 points)
3. What is 'enzyme kinetics?' (2 points)
4. At the beginning of the enzyme (catalase) reaction, why is the rate of the reaction so high? (2 points)
5. At the end of the enzyme (catalase) reaction, why is the rate of reaction so low? (2 points)
6. How will you know that the enzyme reaction of H_2O_2 and catalase is taking place? (1 point)
7. Why is it important to constantly swirl the contents of the beaker after the catalase has been added to the hydrogen peroxide? (1 point)
8. How will you stop the enzyme reaction and why does this work? (2 points)
9. How are you going to determine the amount (in ml) of hydrogen peroxide remaining after the enzyme reaction has been allowed to act for a specific time period? (2 points)
10. What is the difference between the procedure in the baseline assay (Part 2B) and that of the experimental assays (Part 2C)? (2 points)
11. Given the following data that might take place in part 2D, complete the table (5 points). Graph the results (5 points), and complete table 2 (5 points).

TABLE 1: DATA FOR PART 2D

$KmnO_4$ (ml)	10 seconds	30 seconds	60 seconds	120 seconds	180 seconds
A. Baseline	12.40 ml	12.40 ml	12.40 ml	12.40 ml	12.40 ml
B. Final Reading	14.45 ml	22.45 ml	28.80 ml	34.40 ml	39.65 ml
C. Initial Reading	4.40 ml	14.45 ml	22.45 ml	28.80 ml	34.40 ml
D. Vol. $KmnO_4$ used (B-C)					
E. Vol. H_2O_2 used (A-D)					

12. Graph of catalase activity: on the graph paper, plot the volume of H_2O_2 used as a function of time, with title, properly labeled axes, etc. Draw a curve as described in the introduction of the lab.
13. Determine the initial rate of reaction by finding the slope of the fitted line, with units, for the interval 0-10 seconds. Show your work (with units). Using the same procedure, complete table 2.

TABLE 2: RATE OF REACTIONS

Time Interval (sec)	Rate of reaction (ml of H_2O_2 decomposed/sec)
0 – 10	
10 – 30	
30 – 60	
60 – 120	
120 - 180	

14. Explain why the reaction rate changes over time. (2 points)