Enzyme Kinetics - Answer Sheet

7% of total						
Question	7.1	7.2	7.3	7.4	7.5	**Total**
Points	3	4	2	8	17	**34**
Score						

7.1 (3 pt)
Choose the correct alternative form(s) of the initial rate (v_0) expressions (1) and (2):

☐ $v_0 = \frac{k_3[\mathbf{E}]_0[\mathbf{S}]_0}{[\mathbf{S}]_0+K_M}$ ☐ $v_0 = \frac{k_3[\mathbf{E}]}{1+K_M/[\mathbf{S}]_0}$ ☐ $v_0 = j[\mathbf{ES}]_{\max}$

☐ $v_0 = \frac{k_3[\mathbf{E}]_0[\mathbf{ES}]_{\max}}{[\mathbf{S}]_0+K_M}$ ☐ $v_0 = \frac{k_3[\mathbf{E}]_0}{1+K_M/[\mathbf{S}]_0}$ ☐ $v_0 = \frac{j[\mathbf{E}]_0}{K_M+[\mathbf{S}]_0}$

7.2 (4 pt)
Choose the pair(s) of axes (y vs. x) that are expected to give a linear plot:

☐ v_0 vs. $1/[\mathbf{S}]_0$ ☐ v_0 vs. v_0/K_M ☐ v_0 vs. K_M/v_0

☐ $1/v_0$ vs. $v_0/[\mathbf{S}]_0$ ☐ $1/v_0$ vs. v_0/K_M ☐ $[\mathbf{S}]_0/v_0$ vs. $[\mathbf{S}]_0$

7.3 (2 pt)
Show that equation (3) takes the MM form (1) if the concentration of substrate **B** is maintained at a constant value c_0:

Give the expression for $v_{\max}$ in this case:

$v_{\max} =$ ______________________

7.4 (8 pt)
Propose a kinetic scheme for the Enzymatic System I consistent with equation (3), showing all the intermediates and products. **Indicate** the reaction with a rate constant k.

7.5 (17 pt)
Fill in the table:

	Number of active sites	k_1	k_2	k_3	K_M
S_A					
S_B					
S_C		$1.57 \cdot 10^7\ M^{-1}s^{-1}$			

7.5 (cont.)
Provide your calculations:

7.5 (cont.)