THE HONG KONG POLYTECHNIC UNIVERSITY

HONG KONG COMMUNITY COLLEGE

Subject Title : General Biochemistry **Subject Code** : CCN2231

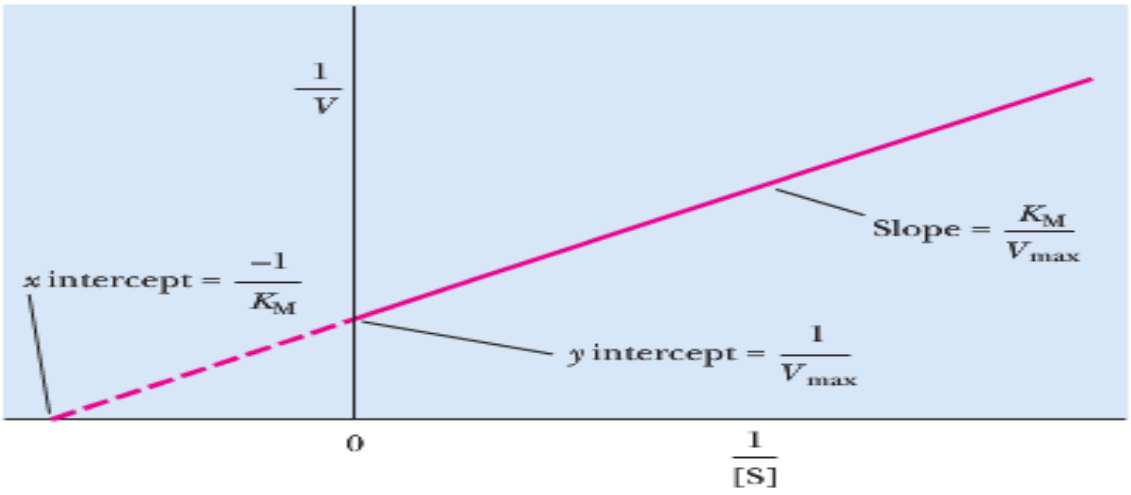
Session : Semester One, 2014/15

Numerical Answers

Question B2

Substrate Concentration (mM)	1/[S] (mM^{-1})	Velocity (mM/sec)	1/V (sec/mM)
5	0.2	0.024	41.667
10	0.1	0.036	27.778
15	0.07	0.053	18.868
20	0.05	0.060	16.667
25	0.04	0.061	16.393

$$\frac{1}{V} = \frac{K_M}{V_{max}}\left(\frac{1}{[S]}\right) + \frac{1}{V_{max}}$$



As line of best fit varies, the method of calculation of K_M or V_{max} is important than the actual results, and acceptable range of y-intercept = 8-12 sec/mM, therefore reciprocal of the y-intercept is the V_{max} = 0.08 to 0.125 mM/sec;
Acceptable range of x-intercept = -0.05 to -0.15 mM^{-1}, therefore reciprocal of the negative of x-intercept is the K_m = 6.5-15.3 mM
(Or alternatively find from the slope (=K_M/V_{max}) of the straight line, with either K_M or V_{max} obtained from the intercepts)