1.

Let x1, x2, x3, and x4 be the concentration of E, S, ES, and P respectively.

Let X1', X2', X3', and X4' be the rate of changes of E, S, ES, and P respectively.

$X1' = k_2 x_3 + k_3 x_3 - k_1 x_1 x_2$

$X2' = k_2 x_3 - k_1 x_1 x_2$

$X3' = k_1 x_1 x_2 - k_2 x_3 - k_3 x_3$

$X4' = k_3 x_3$