

## Question 2

1. Let  $e = [E]$ ,  $s = [S]$ ,  $c = [ES]$ ,  $p = [P]$ . According to law of mass action, we have four equations below:

$$\begin{cases} \frac{ds}{dt} = k_2 * c - k_1 * s * e \\ \frac{de}{dt} = (k_2 + k_3) * c - k_1 * s * e \\ \frac{de}{dt} = (k_2 + k_3) * c - k_1 * s * e \\ \frac{dp}{dt} = k_3 * c \end{cases}$$

2. None  
3. None