Q2

8.1

According to law of mass action

$v_1=k_1[E][S]$

$v_2=k_2[ES]$

$v_3=k_3[ES]$

so

the rate of change of species E: $(k_{3+} k_2)$ [ES]- $k_1[E][S]$

the rate of change of species ES: $(k_{3+} k_2)$ [ES]- $k_1[E][S]$

the rate of change of species S: $k_1[E][S]$- $k_2[ES]$

the rate of change of species P: $k_3[ES]$