

Answers

Tutorial -2 (Chemical Kinetics)

1. $[P] = [A_0](1 - e^{-kAt})$
2. Order of the reaction = 1, $k'' = 5.77 \times 10^{-4} \text{ s}^{-1}$
3. $t_{1/2} = \frac{2 - \sqrt{2}}{k} ([A]_0)^{1/2}$
4. Order of the reaction = 1, $k = 0.136 \text{ h}^{-1}$
5. $k_1 = 4.45 \times 10^{-10} \text{ yrs}^{-1}$, $k_2 = 5.33 \times 10^{-11} \text{ yrs}^{-1}$
6. Order of the reaction = 2
7. $t_{\max} = 2.55 \times 10^{-7} \text{ s}$
8. $\Gamma = \frac{1}{k_b + k_a ([A]_{eq} + [B]_{eq})}$
9. $\Gamma = \frac{1}{k_b + 4k_a [A]_{eq}}$
10. $\Gamma = \frac{1}{k_a ([A]_{eq} + [B]_{eq}) + k_b ([C]_{eq} + [D]_{eq})}$