

Part 2 Chemistry

Class 12

WK	S	M	T	W	T	F	S
44						1	2
45	3	4	5	6	7	8	9
46	10	11	12	13	14	15	16
47	17	18	19	20	21	22	23
48	24	25	26	27	28	29	30

- The decomposition of a compound is found to follow a first order reaction. If it takes 15 minutes for 20% of original solution to react, calculate -
 - the rate constant
 - the time at which 10% of the original solution remains unreacted
- A reactant has a half life of 10 minutes.
 - Calculate the rate constant for the first order reaction
 - What fraction of the reactant will be left after an hour of the reaction has occurred?

3. If a first order reaction has activation energy of 25000 cal and a frequency factor of $5 \times 10^{12} \text{ sec}^{-1}$, at what temperature will the reaction rate have a half life of i) 1 minute ii) 80 days?
4. For a reaction, the energy of activation is zero. What is the value of rate constant at 300K, if $k = 1.6 \times 10^6 \text{ sec}^{-1}$ at 280K?
5. The rate constant for the decomposition of hydrocarbon is $2.418 \times 10^{-5} \text{ s}^{-1}$ at 546K. If the activation energy is $179.9 \text{ kJ mol}^{-1}$, what will be the value of pre-exponential factor?

6. The activation energy of a reaction is zero. Will the rate constant of the reaction depend upon temperature?
7. Define activation energy of a reaction
8. Is there any reaction for which reaction rate does not decrease with time?
9. A 1st order reaction is 50% complete in 20 minutes. What is its rate constant?
10. Give the Arrhenius Equation and its graphical representation.