CLASS 12 BATCH

FOR CHEMISTRY

LECTURE - 06

CHEMICAL KINETICS

Today's Goal

2^{nd} Order reaction

Pseudo 1^{st} order reaction

Temperature dependence

Arrhenius equation

Q

Half life period of a zero order reaction is:

A. Independent of concentration

B. Directly proportional to initial concentration

C. Inversely proportional to concentration

D. Directly proportional to the square of the concentration

2nd Order Reaction

Half-Life

$t_{75\%}$

Graphs

Q

When initial concentration of the reactant is doubled, the half-life period of a zero order reaction **[NEET (UG) - 2012]**

A. Is tripled

B. Is doubled

C. Is halved

D. Remains Unchanged

Q

$t_{1/2}$ V/s $1/a^2$ is a straight line graph then determine the order of reaction:

[AIIMS- 2012]

A. Zero order

B. First order

C. Second order

D. Third order

Q

The rate constant for a second order reaction 8.0×10^{-4} litre mol^{-1} min^{-1}. How long will it take a 0.5 M solution to be reduced to 0.25 M in reactant

A 8.665×10^{2} min

B 8.0×10^{-4} min

C 2.50×10^{3} min

D 4.0×10^{-4} min

Q

For a second order reaction, if the conc. Of a reactant decreases from 0.08 M to 0.04 M in ten minutes, what would be the time taken for the conc. To decreases to 0.01 M -

A 20 minutes

B 30 minutes

C 50 minutes

D 70 minutes

Q Wrong data for the first order reaction is :

A $t_{0.5}$ = 100 s, $t_{0.75}$ = 200s

B $t_{0.5}$ = 16 min, $t_{0.75}$ = 32 min

C Both the above

D $t_{0.5}$ = 100 s, $t_{0.75}$ = 150s

Q Which of the following statement is false :

A. A fast reaction has a larger rate constant and short half life

B. For a first order reaction, successive half lives are equal

C. For a first order reaction, the half-life is independent of concentration

D. The half life of a reaction is half the time required for the reaction to go to completion

Q

Write the expression of DOD for 1^{st} order reaction

Pseudo First Order Rxn

Hydrolysis of Ester in Acidic Medium

Hydrolysis of Ester in Basic Medium

Hydrolysis of Sucrose

Q

$$CH_3COOC_2H_5(aq) + H_2O(l) \xrightarrow{H^+(aq)} CH_3COOH(aq) + C_2H_5OH(aq).$$

What type of reaction is this?

A

B

C

D

Temperature dependence of Rate and Rate Constant

Experimentally it has been found that the rate (or rate constant) of a chemical reaction is 2 to 3 times per 10˚C increase in temperature

Q If T.C is 2 then Calculate rate of Rxn at 60˚C is at 20 ˚C the rate of reaction is r?

Q

If Temperature coefficient of a reaction is 3. How many times the rate of reaction would increase if temperature is raised by 30 K :

A 3

B 9

C 27

D 81

THANK YOU !!

Homework

REVISE FORMULA OF LAST CHAPTER

DPP Of this Lecture