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Thursday

B. Sc 4th Semester

(General)

October'09

Home assignments.

- 1) Define rate of a reaction. What are factors effecting the rate of a reaction?
- 2) Define order and molecularity of a reaction. Write three point of differences between the two.
- 3) What are zero order reactions. Derive the expression for rate constant 'k' for a zero order reaction.
- 4) (a) Derive the integrated rate equation for a first order reaction.
(b) A first order reaction is completed 20% in 10 min. Calculate.

NOTES (i) The rate constant (ii) the time required for 80% completion. (iii) the half life period of the reaction.

5) What do you understand by the term Pseudo Unimolecular reaction. Give one example.

6) What is half life period of a reaction. Show that ~~for a~~

(i) For a First order reaction half life period ($t_{1/2}$) is constant.

(ii) For a second order reaction half life period $t_{1/2}$ is inversely proportion to the initial ~~const~~ concentration.

Ex. 7) Derive the rate equation for the reaction
 $A + A \rightarrow \text{Product}$.

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C
T

Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

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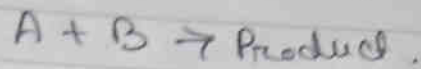
Sunday

(2)

October 02

8) For a first order reaction
 $A \rightarrow \text{Product}$, the concentration of A
 changes from 800 mol/dm^3 to 50 mol/dm^3 in
 $2 \times 10^4 \text{ Sec}$. Find the rate constant k .

9) Derive the rate equation for a
 2nd order reaction of the type



10) What are the units of velocity constants for
 1st order, 2nd order and 3rd order reactions

11) What is the effect of temperature on reaction
 rate? What is temperature coefficient

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Monday

12) In the Arrhenius equation

$$k = A e^{-E_a/RT}$$

What does the different terms signify?

13) Derive Arrhenius equation for two temperatures,
 T_1 and T_2

14) A reaction has specific reaction rate 10^{-3} sec^{-1} .
 How much time it will take for 10 gm of reactant
 to reduce to 2.5 gm. ~~Given~~ Given $\log 6 = 0.778$

15) The rate of reaction become triple when temperature
 changes from 27°C to 127°C . Calculate E_a .
 (From Arrhenius equation)