



FACULTY OF ENGINEERING
UNIVERSITY OF RAJSHAHI

Nº 0036325

Class Test

Total Marks

Roll Number/Student ID No.

Course Code

Exam. Date

Signature of Invigilator

RUP-40,000/C.S. 413/Date: 15.10.2016

Chemical Kinetics

* what do you mean by chemical kinetics.

* what do you mean by reaction rate. what are the factors ^{type}

* what is meant by rate law

* what is meant by order and molecularity of a reaction (2) ice (15), 2013 (16, 14) CSE (2014)

* Distinguish between order and molecularity of a reaction

* what is first order reaction? write down the characteristics of 1st order reaction

* what is second order reaction? write down the

the characteristics of second order reaction.

3* Distinguish between 1st and 2nd order reaction

4*** Deduce the integrated form of 1st order reaction OR $k = \frac{2.303}{t} \log \frac{a}{a-x}$ CSE (2016)

5*** Deduce the integrated form of 2nd order reaction OR $k = \frac{1}{t} \cdot \frac{x}{a(a-x)}$ (2.75) [ICE (16)]
CSE (2012)

0*** What is meant by half-life period

Deduce the half-life period of a first order reaction. OR prove the first order

reaction's half-life period is inversely proportional to the rate constant
OR

Half-life period of ~~first~~ 1st order reaction is independent of initial concentration

OR Half-life period of 1st order reaction is independent of reactant concentration.
— (2.25) i.e (16) CSE (2013)

7*
what is second order reaction? Deduce the integrated form second order reaction
$$K = \frac{1}{t} \cdot \frac{x}{a(a-x)}$$
 i.e (2015)

Deduce the half-life of second order reaction
OR
Prove that half-life of a second order reaction is inversely proportional to the initial concentration of the reactant. i.e (2014), CSE (2014, 2012)

what is energy of activation? How it is determined
(1+2) i.e (16, 2013) CSE (2016)

what is Arrhenius equation. How temperature affects the rate of reaction i.e (2014)
OR

Temperature dependence on rate of a reaction

what is transition state theory

12-*** what is energy of activation. How does the collision theory of reaction explain the energy of activation?

*** what is temperature coefficient? i.e. 1.4

*** what is zero order reaction? Give example. integrate rate eqⁿ 2.75 15 cse

*** what is catalyst?

*** what is catalysis? classification

*** what is catalyst promoter? catalyst poison

*** first order reaction does not complete? prove

*** Show that a second order reaction consists of two reactant can be transformed into a first order reaction if in the system the amount of one reactant is more.

*** A reactant is 50% consumed in 4 minute at a given temperature. How much of the reactant will remain after one hour? cse 2015

*** Calculate the activation energy of a reaction whose rate constant at 27°C gets doubled for 10°C rise in temperature. Cse 2012

Show that in every first order reaction, time for 75% reaction is double the time required for 50%.

1cc (2013)

*** Calculate the time required for 90% completion of a first order reaction which is 50% complete in one hour?

1cc (2015)
