Kurdistan Regional Government Iraq

Ministry of Higher Education & Scientific Research

Salahaddin University –Erbil College of Basic Education General Science Department



Module: Physical Chemistry

Stage: Fourth Time: 2 h

Date: 09/05/2023

Final Exam

Name:

Q1/Define the following:

(12 M)

- 1. Reaction mechanism
- 2. Order of reaction
- **3.** Half time
- 4. Chemical kinetics.
- Q2/ For this reaction $(2Z + 3Y \rightarrow 4S + T)$ the rate of reaction for T is 2 mol/L.S..What are the rate of reaction for other materials? (12 M)

Q3/ Calculate the order of this reaction: aA + bB
$$\longrightarrow$$
 C + D The following data were obtaining.

(12 M)

Expt No.	A (mol/L)	B (mol/L)	Rate, (mol/L.s)
1	0.2	0.3	2 x 10 ⁻⁶
2	0.4	0.3	2×10^{-6}
3	0.2	0.6	8 x 10 ⁻⁶

Q4/ The initial conc. for (CH₃COOC₂H₅) was equal to 4M. The (t_{1/2}) for the reactant was equal to 10 second. Find out the conc. of (CH₃COOC₂H₅) after 15 second? (12 M)

 $CH_3COOC_2H_5$ + NaOH \rightarrow CH_3COONa + C_2H_5OH

05/ Derive and determine the law of this reaction:

(12 M)

$$2NO_{(g)} + Br_{2(g)} \rightarrow 2NOBr_{(g)}$$

Depend on the proposed mechanism:

$$Step \ 1 : NO + Br_2 \rightleftharpoons NOBr_2 \quad (fast)$$

Step 2:
$$NOBr_2 + NO \Rightarrow 2NOBr$$
 (slow)

Best Wishes

Lecturer: Dr. Bakhtiar Kakil Hamad