CHEM 1210-S10
Quiz 3

Name: ANSWERS

1) For the reaction between chlorine and nitric oxide,

$$Cl_2(g) + 2NO(g) \rightarrow 2NOCl(g)$$

it has been observed that doubling the concentration of both reactants increases the rate by a factor of 8. If only the concentration of Cl_2 is doubled, the rate increases by a factor of 2. The order of this reaction with respect to NO is:

A – 0
B – 1
C – 2
D – 3
E – ½

C

2) In an experiment to study the reaction:

$$A + 2B \rightarrow C + 2D$$

the initial rate, $-d[A]/dt$ at $t = 0$ was found to be 2.6×10^{-2} M s^{-1}. What is the value of $-d[B]/dt$ at $t = 0$ in M s^{-1}?

A – 2.6×10^{-2}
B – 5.2×10^{-2}
C – 1.3×10^{-2}
D – 1.0×10^{-1}
E – 6.5×10^{-3}

B

3) For the reaction:

$$A + 2B \rightarrow 2C$$

The rate law for formation of C is:

A – rate = $k[A][B]^2$
B – rate = $k[A][B]$
C – rate = $k[A]^2[B]$
D – rate = $k[C]^2/[A][B]^2$
E – impossible to state from the data given

E

4) For a reaction for which the activation energies of the forward and reverse directions are equal in value:

A – the mechanism can be determined directly from the stoichiometry
B – $\Delta H = 0$
C – $\Delta S = 0$
D – the order is 0
E – there is not a catalyst

B

5) A reaction has a rate constant of $1.50 \times 10^{-3}\ M^{-1}s^{-1}$, if the initial concentration of reactant is 0.75 M, what will the concentration be after 5.0 minutes?

A – 0.30 M
B – 0.48 M
C – 0.56 M
D – 0.75 M
E – cannot determine from the data provided

C

$$\frac{1}{A_t} = \frac{1}{0.75} + 1.5 \times 10^{-3}(300)$$

$$\Rightarrow A_t =$$