Chapter 14:

10TH EDITION:

Chapter 14.1, 14.2, 14.3, 14.4, 14.5, 14.11, 14.13, 14.15, 14.171, 14.19, 14.21, 14.23, 14.27, 14.29, 14.31, 14.33, 14.35, 14.37, 14.39, 14.45, 14.49, 14.51, 14.53, 14.55, 14.59, 14.61, 14.63, 14.65, 14.69, 14.71, 14.75.

11th Edition:

1, 2, 3 , 4, 5, 10, 13, 15, 17, 19, 21, 23, 25, 29, 31, 3, 35, 37, 37, 41, 47, 51, 53, 55, 57,, 61, 63, 65, 66, 67, 71, 73, 77.

Chapter 14, Extra Problem 1.

The radioactive isotope $_{54}V$ decays by beta emission with a half-life of 55 s.
(a) What fraction of a sample of $_{54}V$ will remain after 220 s?
(b) What fraction will remain after 75 s?

Chapter 14, Extra Problem 2

Consider the hypothetical reaction
$A_2(g) + 2B(g) + 2C_2(g) \rightarrow 2AC(g) + 2BC(g)$

for which the following kinetic data have been collected.

Exp.	$[A_2]$, mol/L	[B], mol/L	$[C_2]$, mol/L	Rate, mol/L·s
1	0.120	0.240	0.120	3.62×10^{-4}
2	0.480	0.240	0.120	7.24×10^{-4}
3	0.480	0.240	0.360	7.24×10^{-4}
4	0.480	0.120	0.240	3.62×10^{-4}

(a) Determine the rate law expression for the reaction.
(b) Calculate the value of the rate constant, *k*, with the proper units

Chapter 14, Extra Problem 3:

Consider the hypothetical reaction $A_2(g) + 2B(g) + 2C_2(g) \rightarrow 2AC(g) + 2BC(g)$

for which the experimentally determined rate law has been found to be $Rate = k[A_2]^{½}[B]$. The following two mechanisms have been proposed for this reaction.

Mechanism I:

$A_2 \rightarrow 2A$	fast equilibrium
$A + B \rightarrow AB$	fast equilibrium
$AB + C_2 \rightarrow AC + BC$	slow

Mechanism II:

$A_2 \rightarrow 2A$	fast equilibrium
$A + B \rightarrow AB$	slow
$AB + C_2 \rightarrow AC + BC$	fast

(a) Show that both proposed mechanisms are consistent with the overall stoichiometry of the reaction,
$A_2(g) + 2B(g) + 2C_2(g) \rightarrow 2AC(g) + 2BC(g)$.
(b) What species are reaction intermediates in each mechanism?
(c) Derive the rate law expression for each mechanism in terms of observable reactant species (A_2, B, and C_2). On the basis of your rate law expressions, which mechanism is more plausible?

Chapter 15:

10th Edition:

15.9, 15.11, 15.13, 15.15, 15.17, 15.19, 15.21, 15.23, 15.27, 15.29, 15.31, 15.33, 15.35, 15.37, 15.39, 15.43, 15.45, 15.47, 15.49, 15.51, 15.53, 15.74.

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1, 2, 3, 4, 11, 13, 15, 17, 19, 21, 23, 27, 29, 31, 33, 35, 37, 39,43, 45, 47, 49, 51, 53, 60, 63, 76, 83.