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4.

	$2\ SO_2(g)$	+	$O_2(g)$	$\rightleftharpoons$	$2\ SO_3(g)$
I	2.5		2.0		0
C	–2x		–x		+2x
E	2.5–2x		2.0–x		2x

$[SO_2(g)]_{eq}$ = 0.75 mol/L (from data; 0.75 mol in 1.0 L)
$[SO_2(g)]_{eq}$ = (2.5–2x) mol/L (from ICE table)

therefore, 2.5–2x = 0.75
x = 0.875

$[O_2(g)]_{eq}$ = (2.0–x) mol/L
= (2.0–0.875) mol/L
= 1.1 mol/L (rounded to one decimal place)

$[SO_3(g)]_{eq}$ = 2x mol/L
= 2(0.875) mol/L
= 1.8 mol/L (rounded to two significant digits)

5.

	$PCl_5(g)$	$\rightleftharpoons$	$PCl_3(g)$	+	$Cl_2(g)$
I	2.00		0		0
C	–x		+x		+x
E	2.00–x		x		x

$[PCl_3(g)]_{eq}$ = 0.200 mol/L (from data; 0.300 mol in 1.50 L)
$[PCl_3(g)]_{eq}$ = x mol/L (ICE table)

therefore, x = 0.200

$[PCl_5(g)]_{eq}$ = (2.00–x) mol/L
= (2.00–0.200) mol/L
= 1.80 mol/L (rounded to two decimal places)

$[Cl_2(g)]_{eq}$ = x mol/L
= 0.200 mol/L