حـل الـتـمـريــن 09

1. معادلة التفاعل :

$$Sn(s) \rightarrow Sn^{2+}(aq) + 2\bar{e}$$
$$Cu^{2+}(aq) + 2\bar{e} \rightarrow Cu(s)$$
$$Sn(s) + Cu^{2+}(aq) \rightarrow Sn^{2+}(aq) + Cu(s)$$

الجدول الوصفي للتفاعل :

$Sn(s)$	+	$Cu^{2+}(aq)$	$\rightarrow$	$Sn^{2+}(aq)$	+	$Cu(s)$
n_1		n_2		0		0
$n_1 - x$		$n_2 - x$		x		x
$n_1 - x_{max}$		$n_2 - x_{max}$		x_{max}		x_{max}

$$n_1 - x_{max} = 0 \Rightarrow x_{max} = n_1 \Rightarrow x_{max} = \frac{m(Sn)}{M(Sn)} = \frac{55.10^{-3}}{119} = 4,62.10^{-4}\,mol$$

$$n(Cu) = x_{max}$$

$$n(Cu) = \frac{m(Cu)}{M(Cu)} \Rightarrow m(Cu) = n(Cu)M(Cu) \Rightarrow m(Cu) = x_{max}M(Cu)$$

$$m(Cu) = 4,62.10^{-4} \times 63,5 = 2,93.10^{-2}\,g = 29,3mg$$

2. $$n_2 - x_{max} = 0 \Rightarrow n_2 = x_{max} \Rightarrow \left[Cu^{2+}\right]_i = \frac{x_{max}}{V} = \frac{4,62.10^{-4}}{0,5}$$

$$\Rightarrow \left[Cu^{2+}\right]_i = 9,24.10^{-4}\,mol.L^{-1}$$