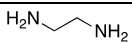


DATOS CERTAMEN 2

Datos	
en=Etilendiamina	
$K_w (\text{H}_2\text{O}, 25^\circ\text{C}) = 10^{-14} = K_a K_b$	
$\text{pH} + \text{pOH} = \text{pK}_w = 14$	
$\%_{\text{ionización}} = \frac{[\text{especie}]_{\text{ionizada}}}{[\text{especie}]_{\text{inicial}}} \times 100$	
$\text{pH} = \text{pK}_a + \log \frac{[\text{base conjugada}]}{[\text{ácido}]}$	
$E^0_{\text{celda}} = E^0_{\text{Red. cátodo}} - E^0_{\text{Red. ánodo}}$	
$1J = 1C \times 1V$	$1F = 96500 C$
$E^\circ = \frac{0.0257}{n} \ln K$	
$E^\circ = \frac{0.0592}{n} \log K$	
$E = E^\circ - \frac{0.0592}{n} \log Q$	
$\Delta G^\circ = -RT \ln K$	
$\Delta G^\circ = -nFE^\circ$	
$R = 0.08206 \text{ atmL/molK}$	
$R = 8.314 \text{ J/molK}$	
$C = I \cdot t$	

Potenciales estándar de reducción a 25°C			
$\text{MnO}_4^- (\text{ac}) + 8\text{H}^+ + 5\text{e}^-$	\rightarrow	$\text{Mn}^{2+} (\text{ac}) + 4\text{H}_2\text{O}(\text{l})$	+1.51
$\text{Au}^{3+} (\text{ac}) + 3\text{e}^-$	\rightarrow	$\text{Au} (\text{s})$	+1.50
$\text{O}_2(\text{g}) + 4\text{H}^+(\text{ac}) + 4\text{e}^-$	\rightarrow	$2\text{H}_2\text{O}(\text{l})$	+1.23
$\text{Br}_2(\text{l}) + 2\text{e}^-$	\rightarrow	$2\text{Br}^- (\text{ac})$	+1.07
$\text{NO}_3^- (\text{ac}) + 4\text{H}^+(\text{ac}) + 3\text{e}^-$	\rightarrow	$\text{NO}(\text{g}) + \text{H}_2\text{O}(\text{l})$	+0.92
$\text{Ag}^+(\text{ac}) + \text{e}^-$	\rightarrow	$\text{Ag}(\text{s})$	+0.80
$\text{Cu}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Cu}(\text{s})$	+0.34
$\text{SO}_4^{2-} (\text{ac}) + 4\text{H}^+(\text{ac}) + 2\text{e}^-$	\rightarrow	$2\text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{ac})$	+0.17
$\text{Cu}^{2+} (\text{ac}) + \text{e}^-$	\rightarrow	$\text{Cu}^+(\text{ac})$	+0.16
$2\text{H}^+(\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{H}_2(\text{g})$	0.00
$\text{Sn}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Sn}(\text{s})$	-0.13
$\text{Pb}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Pb}(\text{s})$	-0.13
$\text{Fe}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Fe}(\text{s})$	-0.44
$\text{Ni}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Ni}(\text{s})$	-0.25
$\text{Co}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Co}(\text{s})$	-0.28
$\text{Cr}^{3+} (\text{ac}) + 3\text{e}^-$	\rightarrow	$\text{Cr}(\text{s})$	-0.74
$\text{Zn}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Zn}(\text{s})$	-0.76
$\text{Al}^{3+} (\text{ac}) + 3\text{e}^-$	\rightarrow	$\text{Al}(\text{s})$	-1.68
$\text{Mg}^{2+} (\text{ac}) + 2\text{e}^-$	\rightarrow	$\text{Mg}(\text{s})$	-2.37