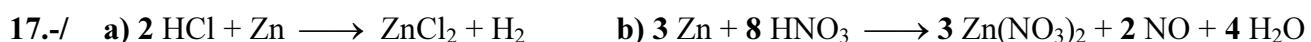
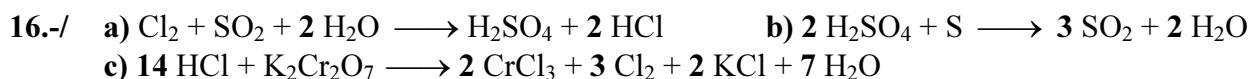
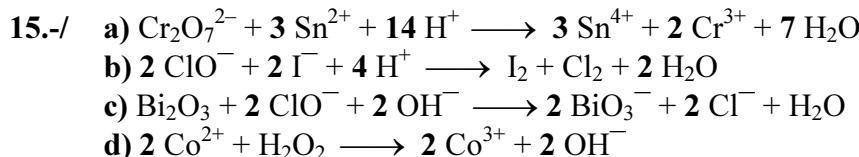
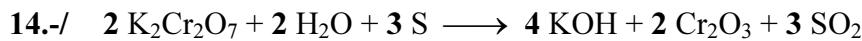
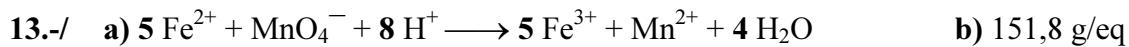
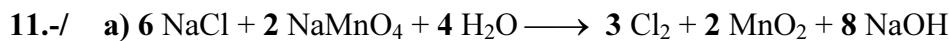
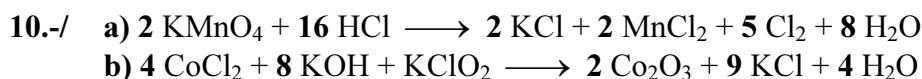
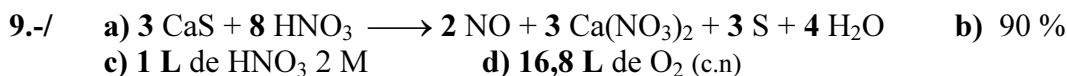
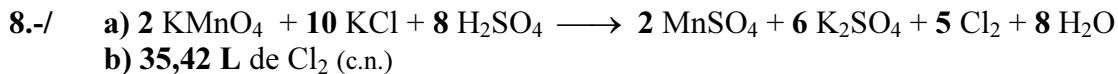
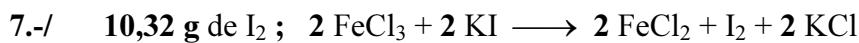
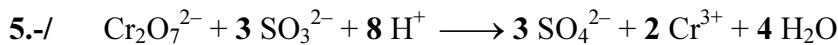
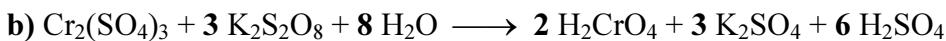
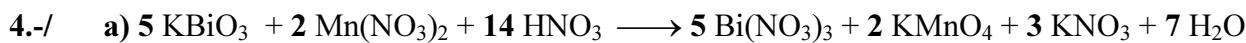
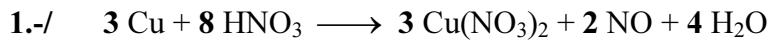
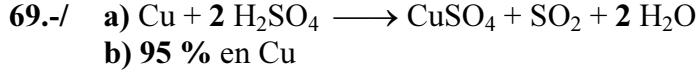
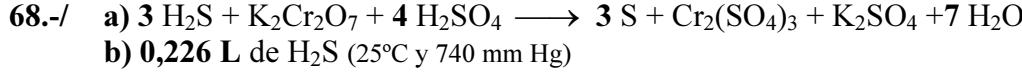
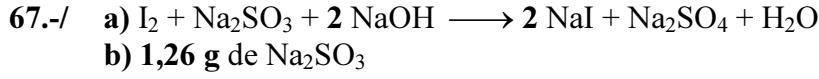
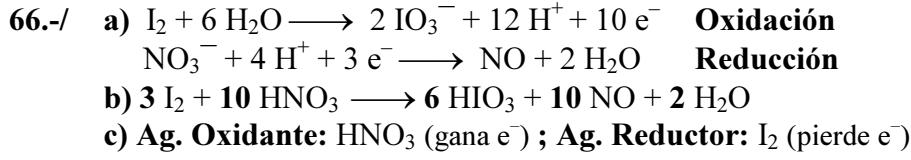
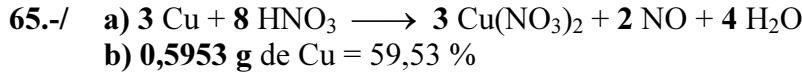
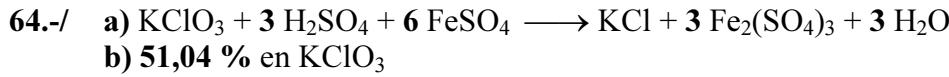
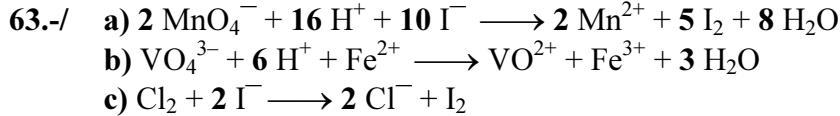
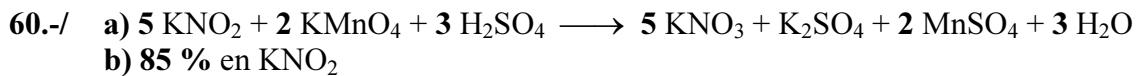
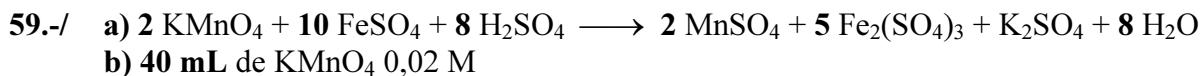
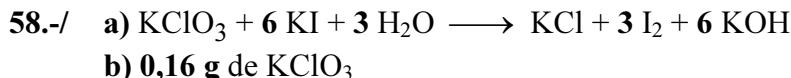
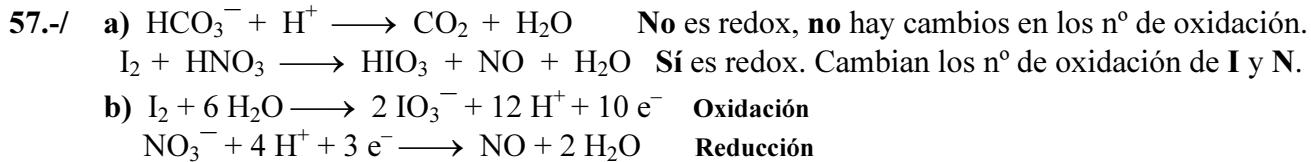
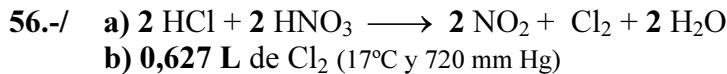
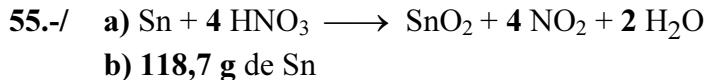
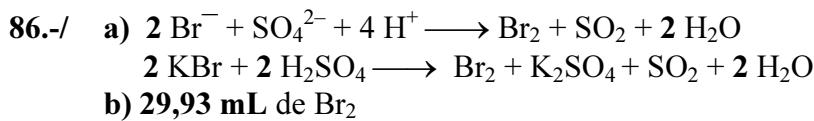
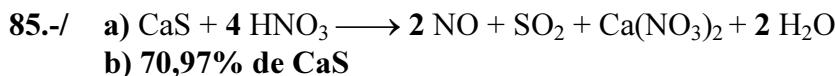
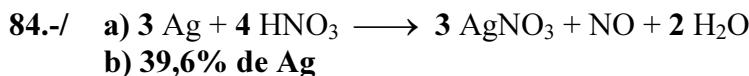
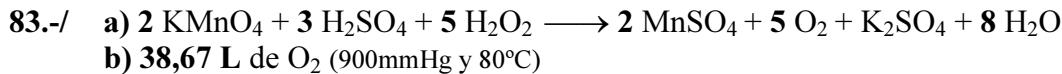
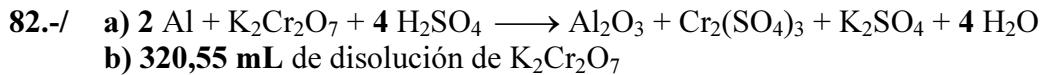
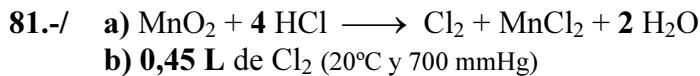
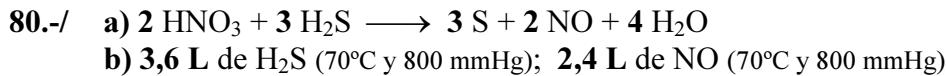
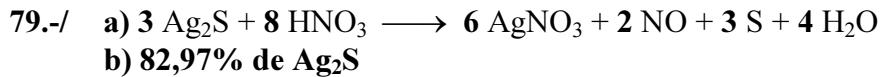
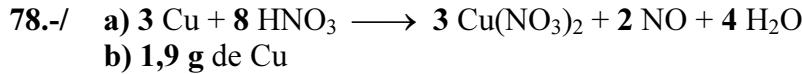
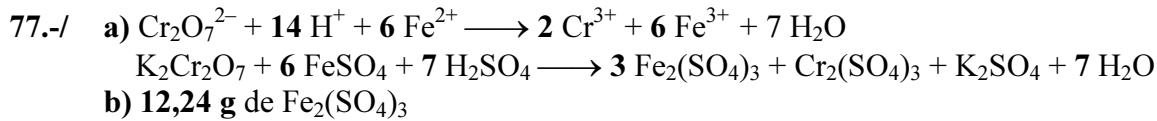
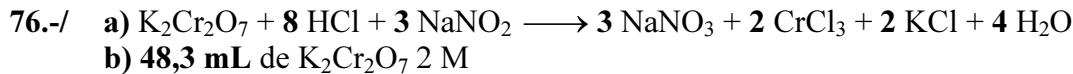
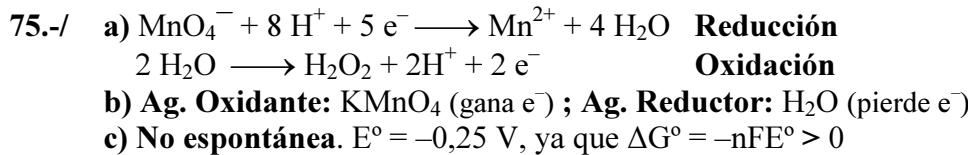
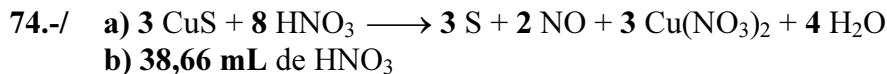
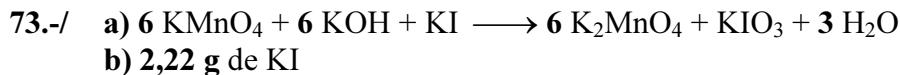
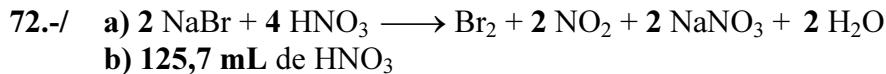
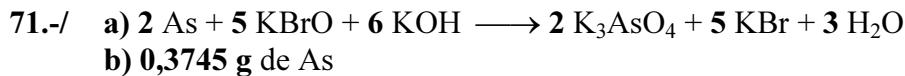
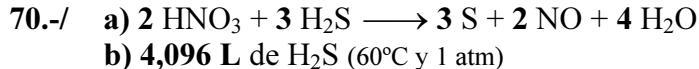
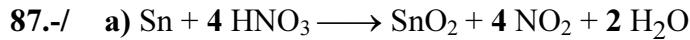


QUÍMICA 2º BACHILLERATO**HOJA N° 12****SOLUCIONES****REACCIONES DE TRANSFERENCIA DE ELECTRONES:****ECUACIONES REDOX Y ESTEQUIOMETRÍA**

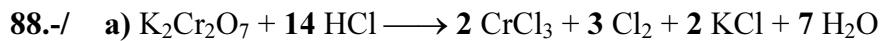
- 18.-/ a) $4 \text{ HNO}_3 + \text{Cu} \longrightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{NO}_2 + 2 \text{H}_2\text{O}$**
b) 50,8 g de Cu ; 209,5 mL HNO₃ del 68,4 %
c) 40,7 L de NO₂ (25°C y 730 mm Hg)
- 19.-/ a) $2 \text{NaIO}_3 + 5 \text{H}_2\text{SO}_3 \longrightarrow \text{I}_2 + 2 \text{NaHSO}_4 + 3 \text{H}_2\text{SO}_4 + \text{H}_2\text{O}$**
b) 0,2 moles de NaIO₃
- 20.-/ a) $2 \text{H}_2\text{SO}_4 + 2 \text{KBr} \longrightarrow \text{K}_2\text{SO}_4 + \text{Br}_2 + \text{SO}_2 + 2 \text{H}_2\text{O}$**
b) 20,72 mL de Br₂
- 21.-/ a) $2 \text{KMnO}_4 + 10 \text{KI} + 8 \text{H}_2\text{SO}_4 \longrightarrow 5 \text{I}_2 + 2 \text{MnSO}_4 + 6 \text{K}_2\text{SO}_4 + 8 \text{H}_2\text{O}$**
b) 788 mL de KMnO₄ 2 M
- 22.-/ a) $6 \text{KI} + 7 \text{H}_2\text{SO}_4 + \text{K}_2\text{Cr}_2\text{O}_7 \longrightarrow 3 \text{I}_2 + \text{Cr}_2(\text{SO}_4)_3 + 4 \text{K}_2\text{SO}_4 + 7 \text{H}_2\text{O}$**
b) 0,16 M
- 23.-/ a) 1^a: No ; 2^a y 3^a: Sí b) $3 \text{CuO} + 2 \text{NH}_3 \longrightarrow \text{N}_2 + 3 \text{H}_2\text{O} + 3 \text{Cu}$
 $2 \text{KClO}_3 \longrightarrow 2 \text{KCl} + 3 \text{O}_2$**
- 24.-/ a) $3 \text{Sn} + 28 \text{HCl} + 2 \text{K}_2\text{Cr}_2\text{O}_7 \longrightarrow 3 \text{SnCl}_4 + 4 \text{CrCl}_3 + 4 \text{KCl} + 14 \text{H}_2\text{O}$**
b) 44,5 %
- 25.-/ a) Ver teoría b) 1^a: Reducción ; 2^a: Oxidación ; 3^a: Oxidación
c) Cl: 3+ → 1- ; S: 0 → 6+ ; Fe: 2+ → 3+**
- 26.-/ a) $\text{Cu} + 2 \text{H}_2\text{SO}_4 \longrightarrow \text{CuSO}_4 + \text{SO}_2 + 2 \text{H}_2\text{O}$**
b) 2,3 g de CuSO₄
- 27.-/ a) $\text{C} + 4 \text{HNO}_3 \longrightarrow 4 \text{NO}_2 + \text{CO}_2 + 2 \text{H}_2\text{O}$**
b) 1254,8 L de CO₂ (25°C y 740 mm Hg)
- 28.-/ a) $2 \text{KMnO}_4 + 5 \text{H}_2\text{O}_2 + 3 \text{H}_2\text{SO}_4 \longrightarrow 2 \text{MnSO}_4 + 5 \text{O}_2 + \text{K}_2\text{SO}_4 + 8 \text{H}_2\text{O}$**
b) 0,725 L de O₂ (25 °C y 800 mm Hg)
- 29.-/ a) $3 \text{Cu} + 8 \text{HNO}_3 \longrightarrow 2 \text{NO} + 3 \text{Cu}(\text{NO}_3)_2 + 4 \text{H}_2\text{O}$**
b) 0,0157 moles de HNO₃ ; 0,374 g de Cu
- 30.-/ a) $2 \text{KBr} + 2 \text{H}_2\text{SO}_4 \longrightarrow \text{K}_2\text{SO}_4 + \text{Br}_2 + \text{SO}_2 + 2 \text{H}_2\text{O}$**
b) 13,73 mL de Br₂
- 31.-/ a) El Mg se oxida b) Se reducen**
- 32.-/ a) $\text{MnO}_2 + 4 \text{HCl} \longrightarrow \text{Cl}_2 + \text{MnCl}_2 + 2 \text{H}_2\text{O}$**
b) 4,5 L de Cl₂ (20°C y 700 mm Hg)
- 33.-/ a) $\text{I}_2 + 10 \text{HNO}_3 \longrightarrow 2 \text{HIO}_3 + 10 \text{NO}_2 + 4 \text{H}_2\text{O}$**
b) 2,27 g de I₂ ; 5,62 g de HNO₃
- 34.-/ a) $\text{I}_2\text{O}_5 + 5 \text{CO} \longrightarrow 5 \text{CO}_2 + \text{I}_2$**
b) 21,58 g de I₂O₅
- 35.-/ a) 1^a: No ; 2^a: Sí
b) Se oxida la Ag ; Se reduce el HNO₃**



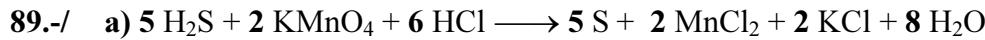




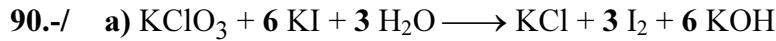
b) **10,68 g** de Sn



b) **36,08 L** de Cl_2 (80°C y 700 mmHg)



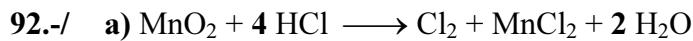
b) **0,63 g** de MnCl_2



b) **2,41 g** de KClO_3



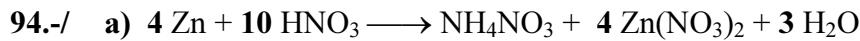
b) Rendimiento = **81,27 %**



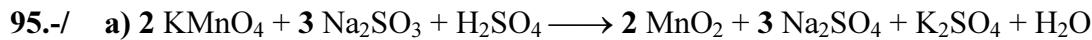
b) **0,48 L** de disolución de HCl 5 M; **52,2 g** de MnO_2



b) **329,4 g** de KOH; **470,59 g** de KOH (si el rendimiento es del 70%)



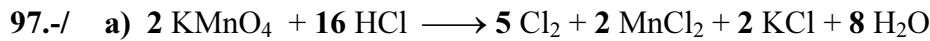
b) **70,9 %** de riqueza en Zn



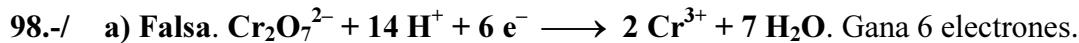
b) **5 L** de disolución de KMnO_4 0,2 M



b) **65,38 %** de riqueza en KNO_2



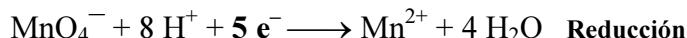
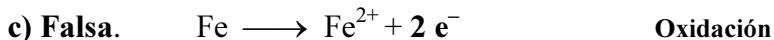
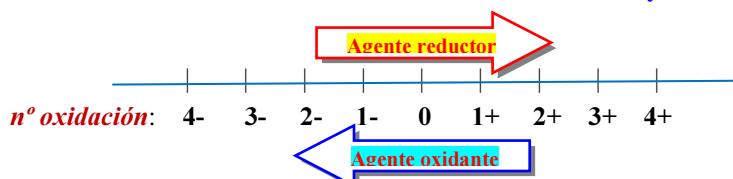
b) **4,67 g** de KMnO_4



b) Falsa. En una reacción redox el agente oxidante experimenta una reducción y por lo tanto gana electrones y por ello su número de oxidación disminuye:

Si el nº de oxidación aumenta: es el agente reductor.

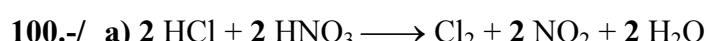
Si el nº de oxidación disminuye: es el agente oxidante.



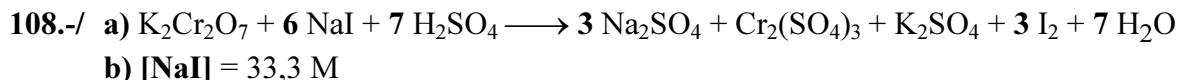
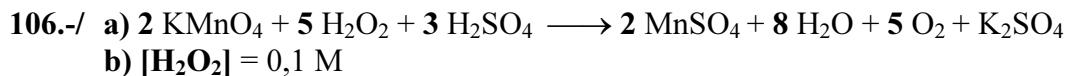
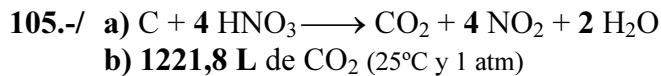
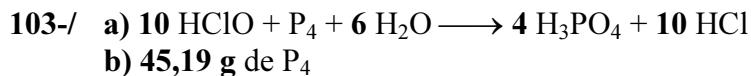
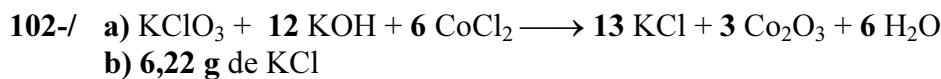
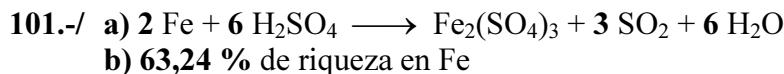
Un mol del agente oxidante, el ion permanganato (MnO_4^-), gana **5 moles** de electrones, mientras que 1 mol del agente reductor (Fe) cede **2 moles** de electrones.



b) **10,56 g** de KClO_3



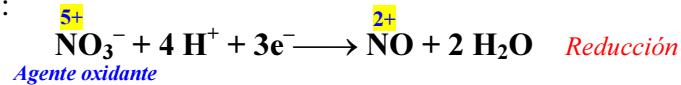
b) Rendimiento = **80 %**



109.-/ a) Verdadera. En las reacciones de combustión el oxígeno, O₂, tiene n° de oxidación 0 y luego aparece combinado en los productos con n° de oxidación 2-, por lo tanto al haber cambio en el n° de oxidación, la reacción de combustión es un proceso redox, en el que el oxígeno gana electrones y por ello es el agente oxidante.

b) Falsa. El agente oxidante es la especie que gana electrones y su n° de oxidación disminuye, por lo tanto experimenta un proceso de reducción que implica ganar electrones.

c) Falsa. El N pasa de n° de oxidación 5+ a 2+, por lo tanto su n° de oxidación disminuye, es decir ha ganado 3e⁻ y experimenta un proceso de reducción. En definitiva el N se reduce, siendo el agente oxidante:



----0OO0----