Reacciones Redox

Reducción
Ganancia de electrones
Disminución del E.O.
Ag. Oxidante

- - - - - - - - - - - - - - -

Oxidación
Perdida de electrones
Aumento de E.O.
Ag. Reductor

Ag. Red $\overset{+4}{S} \xrightarrow[6-4]{2e^-\ \text{OXID}} \overset{+6}{S}$ F.o.E Ox

Ag. Ox $\overset{+7}{Mn} \xrightarrow[2-7]{5e^-\ \text{RED}} \overset{+2}{Mn}$ F.o.E Red

Ag. Ox $2\overset{+5}{Cl} \xrightarrow[-2-(10)]{12e^-\ \text{RED}} \overset{-1}{Cl_2}$ F.o.E Red (+10) (−2)

Ag. Red $\overset{0}{P_4} \xrightarrow[12-0]{12e^-\ \text{OX}} 4\overset{+3}{P}$ F.o.E Ox (0) (+12)

Métodos para balancear:

(H | O)

I. Método del Tanteo:

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

$I_2 + H_2 \rightarrow 2HI$

II. Método Redox:

3+8 : 11

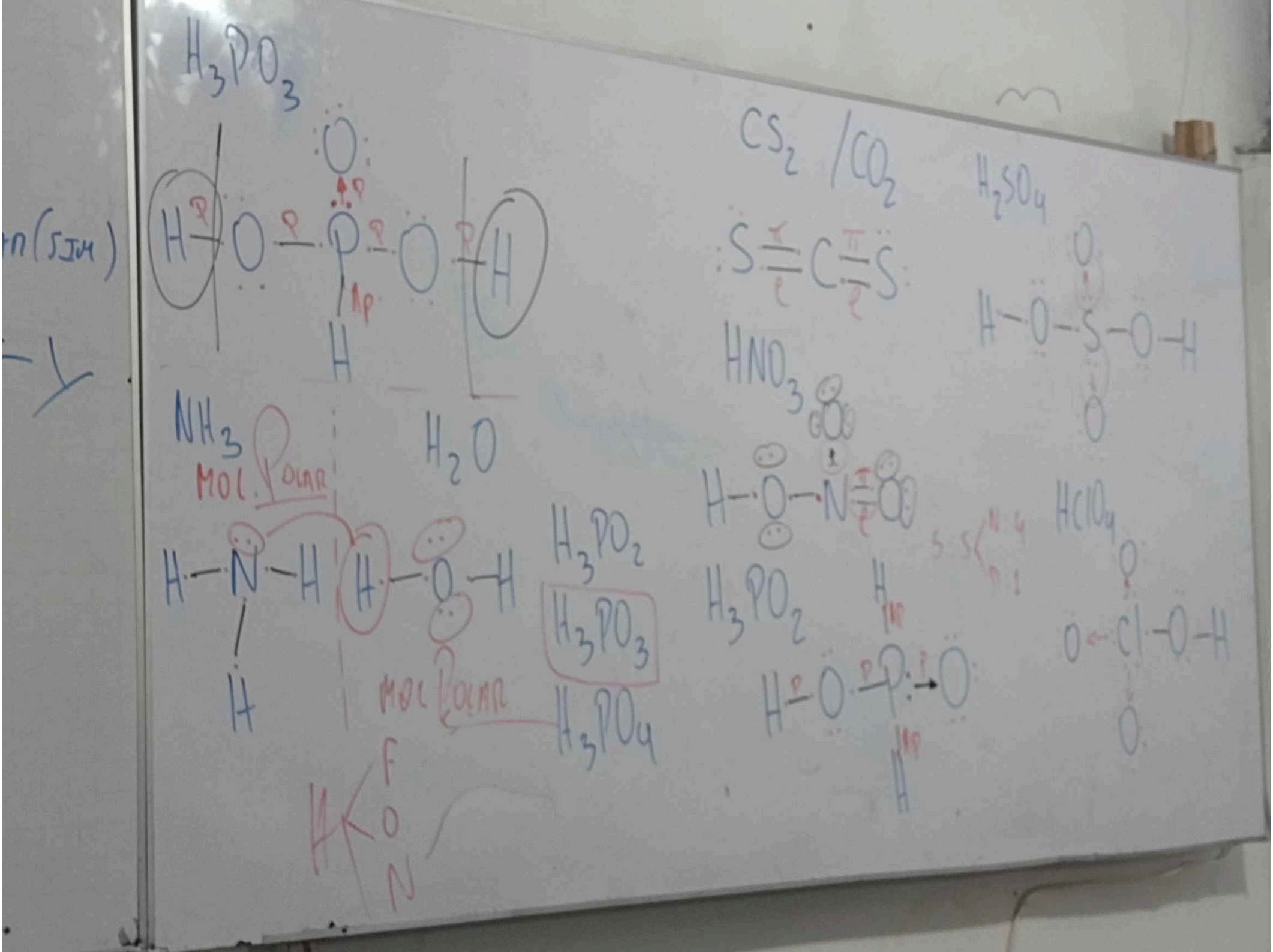
Ag. Red (8) Ag. Oxi

$3\overset{0}{Cu} + 8H\overset{+1}{}\overset{+5}{N}\overset{-2}{O_3} \rightarrow 3\overset{+2}{Cu}(\overset{+5}{N}\overset{-2}{O_3})_2 + 2\overset{+2}{N}\overset{-2}{O} + 4\overset{+1}{H_2}\overset{-2}{O}$

Red (3) x2 (+5 → +2)

Ox (2) x3 (0 → +2)

(4) $NH_3 + H_2SO_4 \rightarrow S + HNO_3 + H_2O$


H3PO3
NH3
MOL. POLAR
H2O
H3PO2
H3PO3
H3PO4
MOL POLAR
CS2 / CO2
HNO3
H2SO4
HClO4
H3PO2

EAR:

TEO:

(H | O)

$3CO_2 + 4H_2O \quad | \quad I_2 + H_2 \rightarrow 2HI$

3+8 : 11

$3 \rightarrow 3Cu(NO_3)_2 + 2NO + 4H_2O$

RED (3) x2

$S + HNO_3 + H_2O$

TOSCANO

③ $C_xH_{2x} + XO_2 \rightarrow XCO + XH_2O$

1+3x

3+4+4+3+7 : 21

④ $3NH_3 + 4H_2SO_4 \rightarrow 4S + 3HNO_3 + H_2O$

-3 Ox (8) x3 +5

+6 RED (6) x4 0

⑤ $2KMnO_4 + 5H_2O_2 + 3H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + 5O_2 + 8H_2O$

Ag Ox Ag RE F.E RED F.E Ox

+7 RED (5) x2 +2

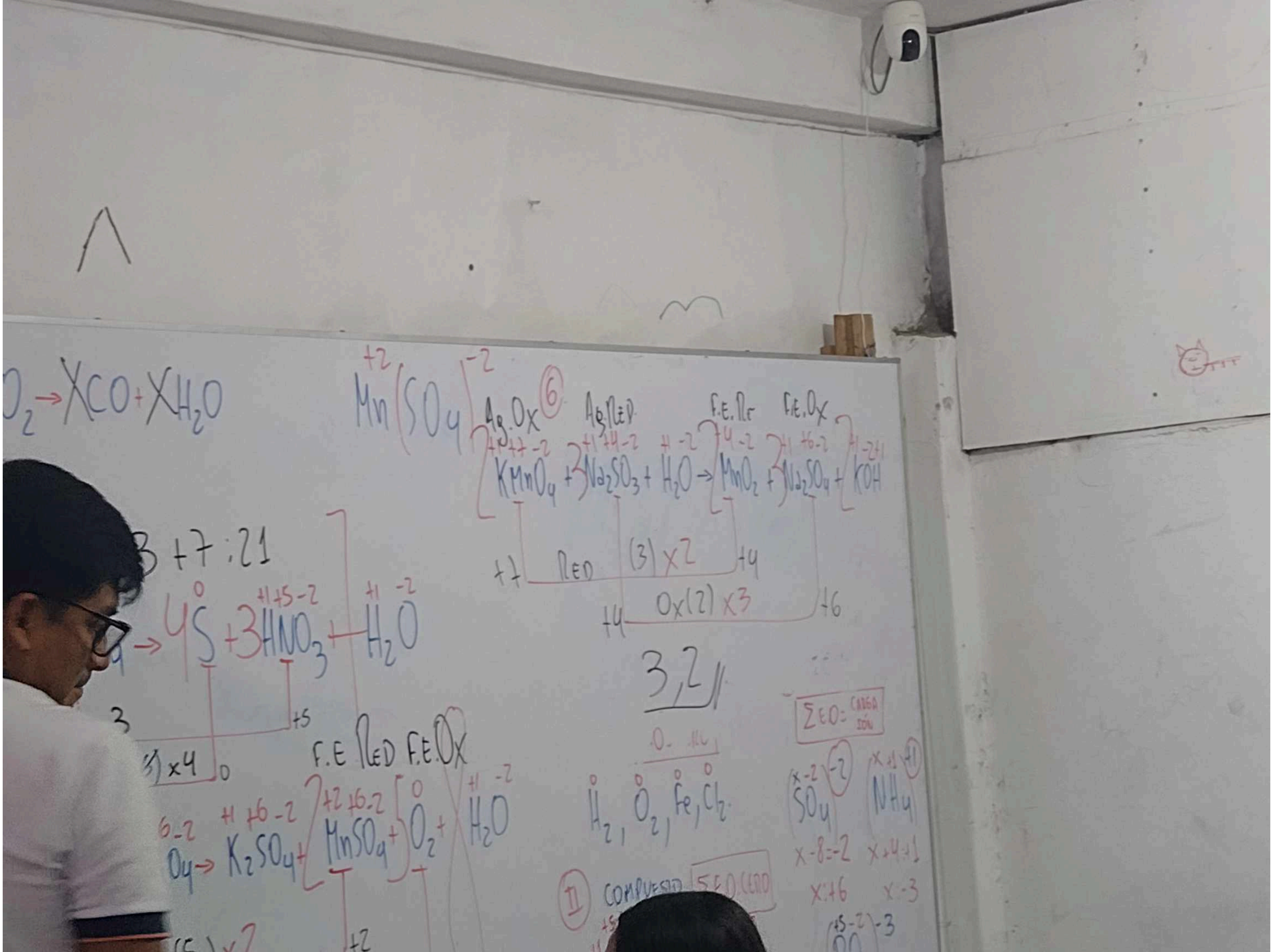
-2 Ox (2) x5 0

Ag.RE : 5

Ag.Ox 2

⑥ $Mn(SO_4)^{-2}$

$KMnO_4 + N$



Mn(SO4)
Ag.Ox
Ag.Red
F.E.Re
F.E.Ox
KMnO4 + 3Na2SO3 + H2O → MnO2 + Na2SO4 + KOH
Red (3) x2
Ox (2) x3
3,2
3 + 7 : 21
4S + 3HNO3 + H2O
F.E Red F.E.Ox
K2SO4 + MnSO4 + O2 + H2O
H2, O2, Fe, Cl2
ΣEO = CARGA ION
SO4 -2
NH4 +1
x - 8 = -2
x + 4 = 1
x : +6
x : -3
COMPUESTO