

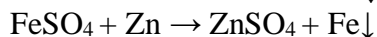
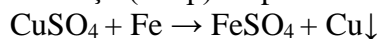
OLIMPIADA DE CHIMIE
10 aprilie 2021
Barem de evaluare și de notare
Clasa a VIII-a

Se punctează orice modalitate de rezolvare corectă a cerințelor!

Subiectul I **(35 de puncte)**

1.....10 p

2 ecuații (2x2p) – 4p



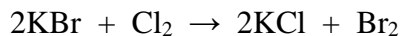
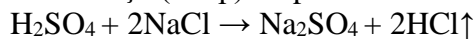
md = 32g CuSO₄ – 1p

masa inițială a plăcuței de fier = 13,6g – 3p

masa finală a plăcuței de zinc = 11,8g - 2p

2.....10p

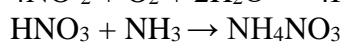
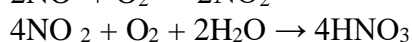
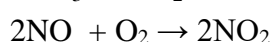
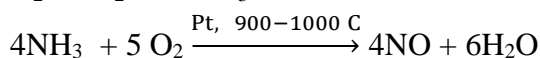
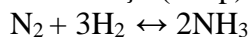
a. 3 ecuații (3x2p) – 6p



b. Randament = 80% – 4p

3.....15p

a. 5 ecuații (5x1p) – 5p



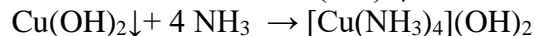
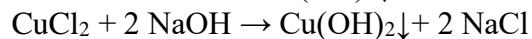
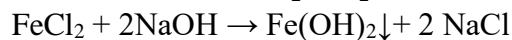
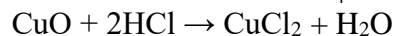
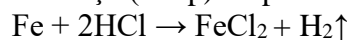
b. compoziția procentuală molară a amestecului final: 7,14% N₂, 50% H₂, 42,85% NH₃ - 5p

c. volumul de aer = 1120 m³ aer – 3 p

d. masa de azotat de amoniu = 1800 kg - 2 p

Subiectul al II-lea **(25 de puncte)**

a. 5 ecuații (5x1p) – 5p



b. Fe(OH)₂ - alb-verzui, Cu(OH)₂ - albastru - (2x0,5p) – 1p

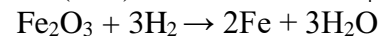
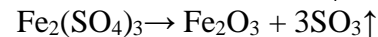
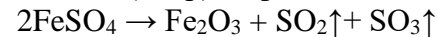
Fe(OH)₂ se transformă în Fe₂O₃·nH₂O – roșu-brun - 1p

c. solubilizarea Cu(OH)₂ → posibilitatea separării Fe³⁺ de Cu²⁺ - 1p

d. m_{Fe} = 1,12 g, m_{CuO} = 3,2 g

25,92% Fe, 74,08% CuO - 5p

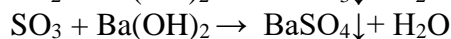
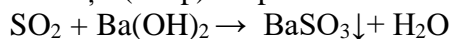
e. 3 ecuații (3x1p) – 3p



3,808 g amestec sulfați - 2p

f. 1,568 g sare Mohr - 2p

g. 2 ecuații (2x1p) - 2p



0,434 g BaSO₃ și 6,058 g BaSO₄ - 3p

Subiectul al III-lea

(40 de puncte)

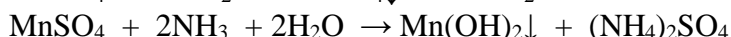
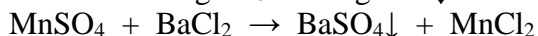
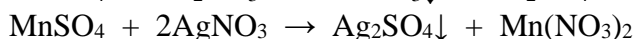
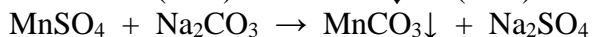
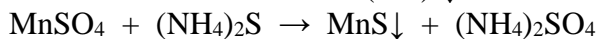
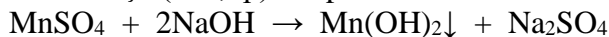
1. 20 puncte

a. prezența mineralelor în natură sub formă de cloruri, fosfați, silicați, azotați – 1 p

b. formula sării A: MnSO₄·4H₂O – 6 p

c. concentrația procentuală de masă = 3, 775% - 2,5 p

d. 6 ecuații (6x0,5p) – 3 p



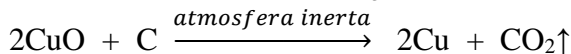
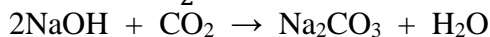
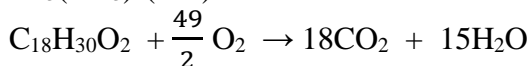
e. 5 culori (5x0,5p) – 2,5 p

Mn(OH)₂ – alb, MnS – roz/verde, MnCO₃ – roz, Ag₂SO₄ – alb, BaSO₄ - alb

f. concentrația procentuală de masă: 3,496% Na₂CO₃, 2,066% Na₂SO₄ – 5 p

2.....20 puncte

a. 5 ecuații (5x2p) – 10 p



b. numărul de moli: malachit – 0,0015 mol, azurit – 0,00075 mol, acid α-linolenic - 0,00075 mol

raportul molar - malachit : azurit : acid linolenic = 2 : 1 : 1 – 8 p

c. concentrația procentuală masică a carbonatului de sodiu = 19,5% - 2 p

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