Facitliste

1. runde november 2005

1-a $CHCl_2COOH + H_2O \leftrightarrow CHCl_2COO^- + H_3O^+$

1-b $[H_3O^+]$ = 0,0500 M og pH = 1,30

1-c α = 50 %

1-d $K = K_S(CHCl_2COOH) / K_S(CH_3COOH) = 2{,}8 \cdot 10^3$

1-e pH = 9,23 og pH = 4,76

1-f Chlor er elektronegativ end hydrogen.

2-a $3\ Cu + 2\ NO_3^- + 8\ H^+ \rightarrow 3\ Cu^{2+} + 2\ NO + 4\ H_2O$

2-b m_{Cu} = 1,37 g => n_{Cu} = 0,0216 mol. $m(CuO_x)$ = 1,72 g => $M(CuO_x)$ = 1,72 / 0,0216 = 79,8 CuO; altså CuO.

2-c m=0,205 g n = 0,00472 mol => M = 43,5 g / mol

2-d (1,00 – x)•46 + x•32 = 43,45 => x = 0,179 => forhold = 0,821 / 0,179 = 4,59

3-a $c = \sqrt{K_o}$ = 9,4•10^{-5} M

3-b $K = [Ca^{2+}] \cdot [HCO_3^-]^2 / [CO_2]$

3-c $[Ca^{2+}]$ = 0,00896 M og $[HCO_3^-]$ = 0,01792 M

4-a Cyklobutan (E), methylcyklopropan(F), but-1-en (A), methylpropen (D), cis-but-2-en (B/C) og trans-but-2-en (B/C)

4-b

4-c A: 1,2-dibrombutan (et asym. C) B/C: 2,3-dibrombutan (to asym. C) D: 1,2-dibrommethylpropan

5-a M = 0,1328 / 0,00225 = 59,0 pr. COOH gruppe dvs. M_C = 118 g / mol

5-b $C_4H_6O_4$

5-c A: hexa-1,5-dien B: hexan C: butandisyre

6-a $e^\ominus$ = -336 mV

6-b $[M^+]$ = 2,6 M U_0 = (340 – 20,6) – (-336 + 24,5) = 630,9 mV

6-c $[M^+]$ = 1,3 M $[Cu^{2+}]$ = 0,1 M

U_0 = (340 – 29,5) – (-336 + 6,7) = 639,8 mV

7-a C_6H_8O

7-b $C_{12}H_{16}O_2$ M_A = (aflæst) 192 g / mol

7-c Over 3000: sp^2, lige under 3000: sp^3, 1750: carbonyl (*samt 1250 og 1150: ester*).

7-d DBE = 12-½•16+1 = 5. (Symmetrisk) substi. benzenring (7,3), dublet (3,6), singlet (3,3) multiplet (2,0) og dublet (0,9)

$\Phi\text{-}CH_2\text{-}(C{=}O)\text{-}O\text{-}CH_2\text{-}CH(CH_3)_2$