

## FACITLISTE 1. runde Kemi-OL 2003

- 1a 25,81 g O og 74,19 g metal. Oxidet er **Na<sub>2</sub>O**.
- 1b 0,944 mol C, 2,831 mol O og 1,886 mol Na giver **Na<sub>2</sub>CO<sub>3</sub>**
- 1c 0,35 mol C og 6,97 mol H giver 1:20
- 1d **Na<sub>2</sub>CO<sub>3</sub> • 10 H<sub>2</sub>O**
- 2a  $c(\text{H}_2\text{SO}_4) = 4,40 \cdot 10^{-8} \text{ M}$                       2b  $c(\text{H}_3\text{O}^+) = 8,79 \cdot 10^{-8} \text{ M}$
- 2c  $c(\text{H}_3\text{O}^+) = 1,53 \cdot 10^{-7} \text{ M}$                       2d pH = 6,82
- 3a pH = 6,06 amfolyt
- 3b pH = 9,78 puffer
- 3c pH = 1,6 ikke stærk syre
- 3d  $\text{OH}^- + \text{Gly} \rightarrow \text{H}_2\text{O} + \text{Gly}^-$
- 3e  $n = 0,0028 \text{ mol}$
- 3f  $V(\text{NaOH}) = 2.8 \text{ mL}$
- 4a 0,05 mol C og 0,08 mol H giver 5:8
- 4b C<sub>5</sub>H<sub>8</sub>
- 4c f.eks.: 1-pentyne, 2-pentyne, 1,2-pentadien, 1,3-pentadien (cis/trans), 1,4-pentadien, cyclopenten, 1,2-dimethylcyclopropen, 3-ethylcyclopropen, 1-methylcyclobuten, 1,3-dimethylcyclopropen og 3-methylcyclobuten
- 4d  $\text{C}_5\text{H}_8 + \text{H}_2 \rightarrow \text{C}_5\text{H}_{10}$
- 4e cyclopenten
- 5a  $\text{Zn(s)} | \text{Zn}^{2+}(\text{aq}) || \text{Ag}^+(\text{aq}) | \text{Ag(s)}$  ; reduktion ved Ag(s)
- 5b Ag<sup>+</sup> begrænser 0,100 mol giver 9649 C
- 5c  $U_0 = 0,74 \text{ V} - (-0,78 \text{ V}) = 1,52 \text{ V}$
- 5d  $[\text{Ag}^+] = 7,36 \cdot 10^{-10} \text{ M}$
- 5e  $[\text{Cl}^-] = 0,200 \text{ M}$                        $K_{\text{O}} = 1,5 \cdot 10^{-10} \text{ M}^2$