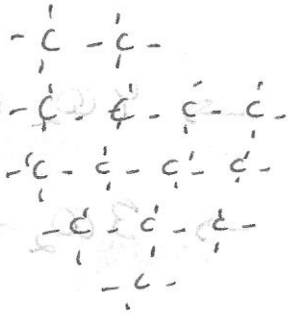
1) éthane C_2H_6
n-butane C_4H_{10}
n-pentane C_5H_{12}
méthylpropane C_4H_{10}



2) $M = 72\,g/mol \xrightarrow{72/12} 6\,C$
$\rightarrow 5\,C = 60 + 12\,H \quad C_5H_{12}$

$CH_3-CH_2-CH_2-CH_2-CH_3$ n-pentane

$CH_3-CH(CH_3)-CH_2-CH_3$ méthylbutane

$CH_3-C(CH_3)_2-CH_3$ diméthylpropane

3) $C_2H_6 + \frac{7}{2}O_2 \rightarrow 2CO_2 + 3H_2O$
40 30

$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

$C_4H_{10} + \frac{13}{2}O_2 \rightarrow 4CO_2 + 5H_2O$
8 5

$2C_4H_{10} + 13O_2 \rightarrow 8CO_2 + 10H_2O$

$C_{25}H_{52} + 38O_2 \rightarrow 25CO_2 + 26H_2O$
50 26

4) C_2H_6 voir 3
$C_5H_{12} + 8O_2 \rightarrow 5CO_2 + 6H_2O$
10 6

C_4H_{10} voir 3

5] $C_4H_{10} + xO_2 \rightarrow 4CO_2 + 5H_2O$

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

$m = 60\,g$

$\downarrow /M = 44\,g/mol$

$n = 1{,}36\,mol$

$-1 \cdot 1{,}36$ $\qquad$ $+3 \cdot 1{,}36$

$n = 3{,}408\,mol$

$\downarrow \times V_m = 22{,}4\,L/mol$

$V_{gaz} = 76{,}3\,L$

7] $V_{air} = 50\,m^3$

$V_{O_2} = \frac{21}{100} V_{air} = 10{,}5\,m^3$ $\qquad$ $1{,}5\,m^3$

$10500\,L$ $\qquad$ $\Delta V_{O_2} = 18500\,L$

$V_{O_2} = \frac{18}{100} V_{air} = 9000\,L$

$C_4H_{10} + \frac{13}{2}O_2 \rightarrow 4CO_2 + 5H_2O$

$2\,C_4H_{10} + 13O_2 \rightarrow 4CO_2 + 5H_2O$

$m = 555{,}4\,g$ $\qquad$ $V_{gaz} = 1500\,L$

$\uparrow M = 58\,g/mol$ $\qquad$ $\downarrow \times V_m = 24{,}1\,L/mol$

$n = 9{,}6\,mol$ $\qquad$ $n = 62{,}2\,mol$

$-2 \cdot 4{,}8\,mol$ $\qquad$ $-13 \cdot 4{,}8\,mol$

$m_{CH_4} = 555{,}4\,g$

$\Delta t = \frac{m_{CH_4}}{m_{CH_4/h}} = \frac{555{,}4}{150} = 3{,}7\,h$