$\qquad$ YP/MR

Question One- Complete the following tables

$$
\mathrm{C}_{7} \mathrm{H}_{16}+11 \mathrm{O}_{2} \rightarrow 7 \mathrm{CO}_{2}+8 \mathrm{H}_{2} \mathrm{O}
$$

| Mass of <br> $\mathbf{C}_{7} \mathrm{H}_{16}$ | Amount of <br> $\mathbf{C}_{7} \mathrm{H}_{16}$ | Mass of $\mathrm{O}_{2}$ | Amount of <br> $\mathbf{O}_{2}$ | Mass of $\mathrm{CO}_{2}$ | Amount of <br> $\mathbf{C O}_{2}$ | Mass of $\mathrm{H}_{2} \mathrm{O}$ | Amount of <br> $\mathbf{H}_{2} \mathrm{O}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 17.3 g |  |  |  |  |  |  |  |
|  |  | 24.2 g |  |  |  |  |  |
|  |  |  |  | 18.5 g |  |  |  |
|  |  |  |  |  | 8.2 g |  |  |

## Question Two

a) 20 mL of unknown concentration of NaOH is titrated against $0.103 \mathrm{molL}^{-1}$ of $\mathrm{H}_{2} \mathrm{SO}_{4}$

$$
2 \mathrm{NaOH}+\mathrm{H}_{2} \mathrm{SO}_{4} \rightarrow \mathrm{Na}_{2} \mathrm{SO}_{4}+2 \mathrm{H}_{2} \mathrm{O}
$$

| Trails | $\# 1$ | $\# 2$ | \#3 | \#4 |
| ---: | :---: | :---: | :---: | :---: |
| Titre $(\mathrm{mL})$ | 20.6 | 21.3 | 21.3 | 21.2 |

Using the results above, determine the concentration of unknown NaOH (show all working and units)
b) 15 mL of unknown concentration of HCl is titrated against $0.0998 \mathrm{molL}^{-1}$ of KOH

$$
\mathrm{KOH}+\mathrm{HCl} \rightarrow \mathrm{KCl}+\mathrm{H}_{2} \mathrm{O}
$$

| Trails | $\# 1$ | $\# 2$ | \#3 | \#4 |
| ---: | :---: | :---: | :---: | :---: |
| Titre $(\mathrm{mL})$ | 18.5 | 17.4 | 17.5 | 17.3 |

Using the results above, determine the concentration of unknown HCl (show all working and units)

Calculate the mass of propane required to produce 530

