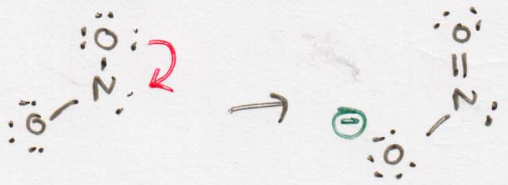
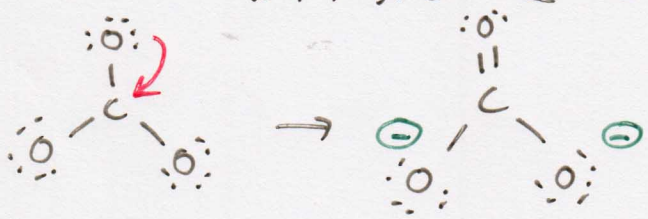
NO_2^- $1\times N + 2\times O +$ charge

$1\times 5 + 2\times 6 + 1 = 18\ e^-$



CO_3^{-2} $1\times C + 3\times O +$ charge

$1\times 4 + 3\times 6 + 2 = 24\ e^-$



SiO_2 $1\times Si + 2\times O$

$1\times 4 + 2\times 6 = 16 e^-$

permanent dipoles – caused by molecular structure

temporary dipoles – caused by interaction with polar molecules or by molecular motion

amu = $\frac{1}{12}$ mass of ^{12}C atom 1 mole amu = 1 g

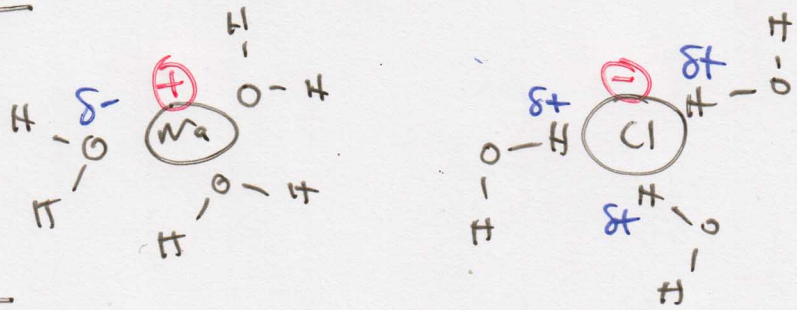
30.0 mL of 0.80 M $NaHCO_3$ $M = \frac{\text{mol solute}}{\text{L solution}}$

$n = M \cdot V = (0.80\ M)(.0300\ L) = 0.024$ mol $NaHCO_3$

molar mass = $1\times Na + 1\times H + 1\times C + 3\times O$

$= 22.99 + 1.01 + 12.01 + 3\times 16.00 = 84.01$ g $NaHCO_3$/mol

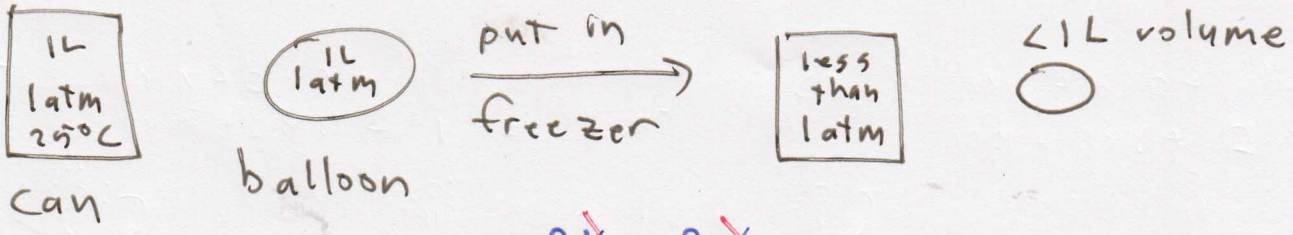
$0.024\ mol \times 84.01\ g/mol = 2.0\ g\ NaHCO_3$



Ideal gasses; – gas molecules occupy no volume
would affect volume

– gas molecules experience no IMF
would affect pressure

– gas molecules do not lose energy
would affect temperature



$PV = nRT \longrightarrow \frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$

5.00 L N_2 @ 867 torr @ 5°C (1.14 atm)

$PV = nRT \qquad n = \frac{PV}{RT} = \frac{(867/700)(5.00)}{(.0821)(273+5)} = 0.25$ mol

---

SF_6

$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$

$\frac{(1.01)(4)}{298\,K} = \frac{(.950)(V_2)}{253\,K}$

$V_2 = \frac{253}{298} \cdot \frac{1.01}{.950} \times 4 = 3.6\ L$

NH_3 ← Is a Brønsted-Lowry base because it reacts w/ H^+

← Is not an Arrhenius base; no OH^- in its formula

---

neutral: $[H^+] = [OH^-]$

Strong acids: HCl, H_2SO_4, HNO_3

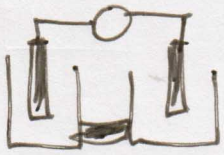
Weak acids: CH_3COOH, HF

$HCl_{(aq)} + NaOH_{(aq)} \longrightarrow NaCl_{(aq)} + H_2O_{(\ell)}$

neutralized! moles acid = moles base

$pH \equiv -\log_{10}[H^+] = -\log_{10}(1.75 \times 10^{-4}) = 3.76$

Quiz #3 – definition of oxidation & reduction
examples of oxidizers & reducers
oxidation states
electrochemical cell
anode & cathode
salt bridge



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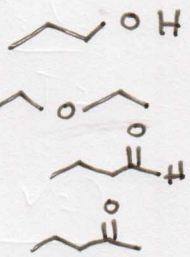
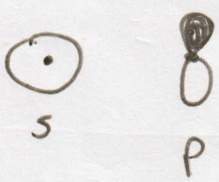
hydrocarbons – saturated vs unsaturated
no line structures
isomers

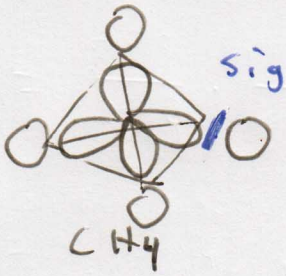
functional groups –

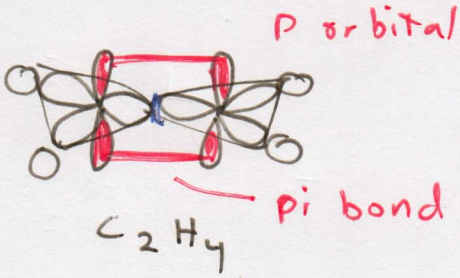
alkanes
alkenes
alkynes

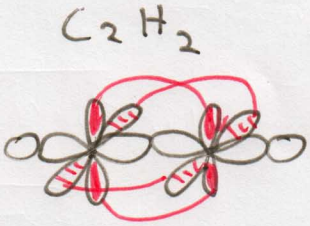
alcohol
ether
aldehyde
ketone

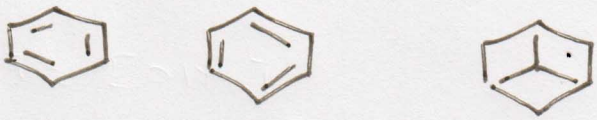


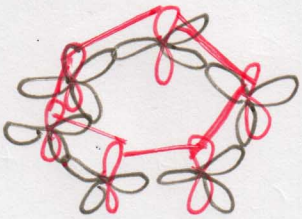












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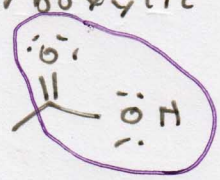
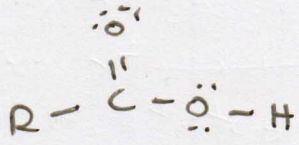
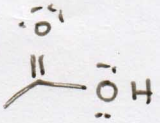
synapse

carboxylic acid

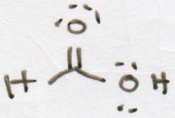




R = variable



acetic acid

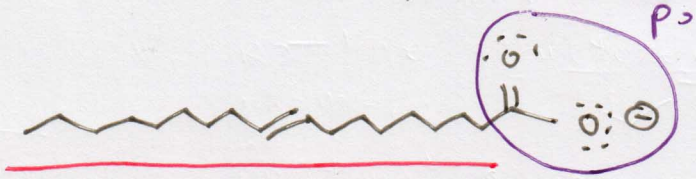


formic acid

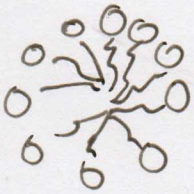
oleic acid

↓ NaOH

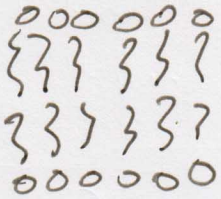
polar



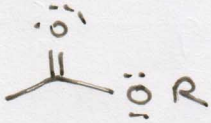
non-polar



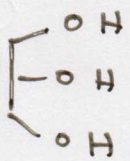
micelle



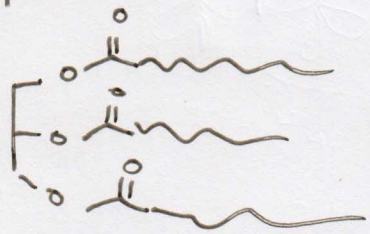
ester



R = carbon group



glycerol



triglyceride