



Chem!stry

Name: ()

Class:

Date: / /

Questions on Qualitative Analysis – Assignment 3 – Answers

Question One:

a)

A Lead(II) nitrate, $\text{Pb}(\text{NO}_3)_2$

C Lead(II) oxide, PbO

E Lead(II) hydroxide $\text{Pb}(\text{OH})_2$

G Lead(II) iodide, PbI_2

B Oxygen, O_2

D Nitrogen dioxide, or nitrogen(IV) oxide, NO_2

F Tetrahydroxolead(II) ion, $[\text{Pb}(\text{OH})_4]^{2-}$

H Ammonia, NH_3



Question Two:

	Procedure:	Observation:	Inference:
Step One:	Add a few drops of nitric acid to a sample of each unknown.	Effervescence of a colourless and odourless gas is observed in one of the test tubes.	The test tube in which the effervescence is observed contains the sodium carbonate solution.
Step Two:	Add a few drops of the sodium carbonate solution to a sample of each of the remaining unknowns.	A white precipitate will be observed in one of the test tubes.	The test tube in which the white precipitate is observed contains the barium chloride solution.
Step Three:	Add a few drops of the barium chloride solution to a sample of each of the remaining unknowns.	A white precipitate will be observed in one of the test tubes.	The test tube in which the white precipitate is observed contains the potassium sulfate solution. The remaining test tube contains the sodium chloride solution.



Question Three:

a)

A Potassium manganate(VII), KMnO_4

B Iron(III) ion, Fe^{3+}

C Iron(III) hydroxide, $\text{Fe}(\text{OH})_3$

D Carbon dioxide, CO_2

E Manganese(II) ion, Mn^{2+}

F Iodine, I_2

b) The ionic half-equation with respect to the manganate(VII) ion is:



This should be combined with any one of the following ionic half-equations after the total number of electrons in the two ionic half-equations have been balanced and cancelled out:

