Department of Earth and Planetary Sciences
EPSC-220A
Principles of Geochemistry

Assignment # 1
Fall term, 2017
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Q.1
The element tin, Sn, has ten stable isotopes. Calculate the atomic weight of tin given the abundances and masses of its naturally occurring isotopes.

	Abundance, %		Abundance, %
^{112}Sn	0.96	^{114}Sn	0.66
^{115}Sn	0.35	^{116}Se	14.3
^{117}Sn	7.61	^{118}Sn	24.03
^{119}Sn	8.58	^{120}Sn	32.85
^{122}Sn	4.72	^{124}Sn	5.94

Q.2 5.00 grams of Na_2SO_4 are dissolved in 355 grams of water at 25^{o}C.
Calculate the concentration of:

i) total salt, in weight percent
ii) sodium, in ppm (parts per million)
iii) sulfate, in moles per kg of solution

Q.3 The density of a gas which behaves ideally is 2.76 g/L at a pressure of 2 atm and a temperature of 25°C. What is its molecular mass?

Q.4

Into a gas bulb of 2.83 litres are introduced 0.174 g of H_2 and 1.365 f of N_2, which can be assumed to behave ideally. The temperature is 0°C.

a) What are the partial pressures of H_2 and N_2, and what is the total gas pressure?
b) What are the mole fractions of each gas?
c) What are the pressure fractions of each gas?