CHEM 220 Problem Set 1

1) Write the structure and the formulas for the following organic compounds:

a) methane	b) ethane	c) propane	d) butane
e) pentane	f) hexane	g) heptane	h) octane
i) nonane	j) decane	k) undecane	l) dodecane
m) tridecane	n) tetradecane	o) pentadecane	p) hexadecane
q) heptadecane	r) octadecane	s) nonadecane	t) eicosane

2) Write the formula for the following radicals:

a) methyl	b) ethyl	c) n-propyl	d) isopropyl
e) n-butyl	f) sec-butyl	g) isobutyl	h) tert-butyl
i) n-pentyl	j) sec-pentyl	k) 3-pentyl	l) isopentyl
m) tert-pentyl	n) neopentyl	o) n-hexyl	p) iso-hexyl

3) Write out the combustion reaction and reaction products for the following:

a) methane and excess oxygen	b) ethane and excess oxygen
c) propane and excess oxygen	d) butane and excess oxygen
e) pentane and excess oxygen	f) hexane and excess oxygen
g) heptane and excess oxygen	h) octane and excess oxygen
i) nonane and excess oxygen	j) eicosane and excess oxygen

4) Based on the level of hydrogen activity, write out the reaction and one monohalogenated reaction product for the following:

a) methane and chlorine at room temperature in light

b) ethane and chlorine at room temperature in light

c) propane and chlorine at room temperature in light

d) butane and chlorine at room temperature in light

e) pentane and chlorine at room temperature in light

f) hexane and chlorine at room temperature in light

g) heptane and chlorine at room temperature in light

h) octane and chlorine at room temperature in light

i) nonane and chlorine at room temperature in light

j) decane and chlorine at room temperature in light

5) Write the same reactions and products in #4 using bromine instead of chlorine.