Chem 220 Problem Set 2 Part 1

1. Name the following organic compounds:

A	CH_4	K	C_2H_4	U	C_2H_2
B	C_2H_6	L	C_3H_6	V	C_3H_4
C	C_3H_8	M	C_4H_8	W	C_4H_6
D	C_4H_{10}	N	C_5H_{10}	X	C_5H_8
E	C_5H_{12}	O	C_6H_{12}	Y	C_6H_{10}
F	C_6H_{14}	P	C_7H_{14}	Z	C_7H_{12}
G	C_7H_{16}	Q	C_8H_{16}	AA	C_8H_{14}
H	C_8H_{18}	R	C_9H_{18}	AB	C_9H_{16}
I	C_9H_{20}	S	$C_{10}H_{20}$	AC	$C_{10}H_{18}$
J	$C_{10}H_{22}$	T	$C_{11}H_{22}$	AD	$C_{11}H_{20}$

2. Name the following radicals, including all the isomers of the radicals:

A	$CH_3\bullet$
B	$C_2H_5\bullet$
C	$C_3H_7\bullet$
D	$C_4H_9\bullet$
E	$C_5H_{11}\bullet$
F	$C_6H_{13}\bullet$

3. Draw the following compounds based on their IUPAC names:

A	2,3,5,7-tetramethylnonane	K	Cis-2-butene
B	2,3-dimethylbutane	L	1,3-butadiene
C	3,4-dimethylhexane	M	2-methyl-2-butene
D	5-ethyl-2,4,6-trimethylheptane	N	4-methyl-1,3,6-octatriene
E	4-isopropyl-2-methylhexane	O	1,3,5-hexatriene
F	2,2-dimethylpropane	P	3-isopropyl-2,4-dimethyl-1-pentene
G	7-ethyl-4-isobutyl-2-methylnonane	Q	1,2,4,5-hexatetraene
H	2,2,3,3-tetramethylbutane	R	2-butene
I	Ethane	S	1-trans-4-hexadiene
J	4-ethyl-3,7-dimethyldecane	T	3-ethyl-4-propyl-3-heptene

4. Write out and complete the following reactions:

A. ethane plus chlorine in light

B. propane plus chlorine in light

C. isobutane plus chlorine in light

D. butane plus bromine in light

E. 2,3-dimethylpropane plus bromine in light

F. C_6H_{14} plus XS O_2

G. C_5H_{12} plus XS O_2

H. C_2H_6 plus XS O_2

I. C_8H_{18} plus XS O_2

J. $C_{20}H_{42}$ plus XS O_2

K. CH_4 plus XS O_2

5. What kinds of bonds are between carbon atoms in alkanes? What is the hybridization of these carbon atoms?

6. What kinds of bonds are between carbon atoms double-bonded to each other? What is the hybridization of these carbon atoms?