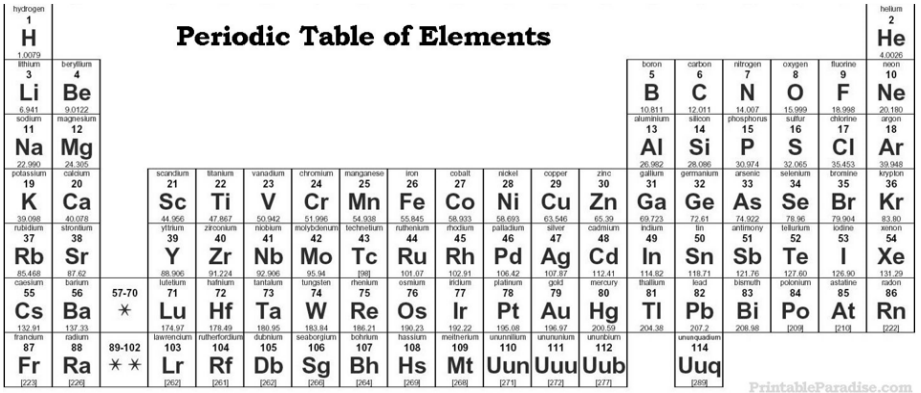
1 What is the **second-most** electronegative element?



2 For each pair of atoms, describe the type of bond that is expected to form between them.

LiBr | CH | NH

3 For each element below, attach as many H atoms as necessary to give a stable, neutral molecule.

C

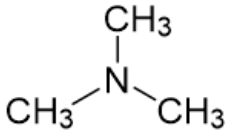
N

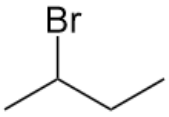
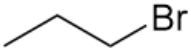
O

Br

4 Which of the following represents a pair of constitutional isomers?

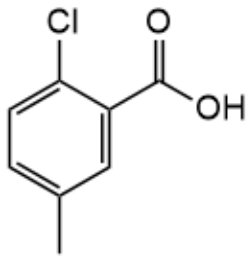
I. H_2O and H_3O^+

II.  and $CH_3CH_2CH_2NH_2$

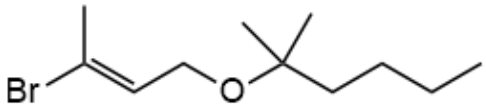
III.  and 

How many carbon atoms and hydrogen atoms are in the following structure?

5



6



7 Draw the Lewis structure of the following

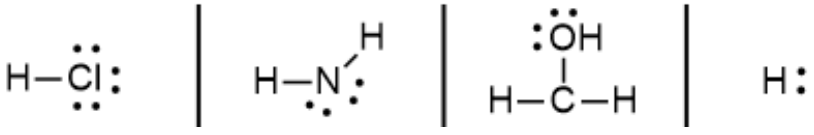
$CCl_3CO_2CH_2CH_3$

Drawing Lewis Structures (Klein 1.3)

1) draw skeleton - connectivity
2) count total # of valence electrons
   (valence e^- = group no.)
3) subtract charge (if any)
4) fill in missing electrons (fill octets)
5) determine formal charges (if any)

8

Add any missing formal charges in the following Lewis structures:



Formal Charges (Klein 1.4)

- **determine "electron count"**
  = all nonbonded + 1/2 bonded/shared
- **compare "electron count" with valence**
  missing an electron → + charge
  extra electron → – charge

1 Which element is the **second-most** electronegative element in the Periodic Table?

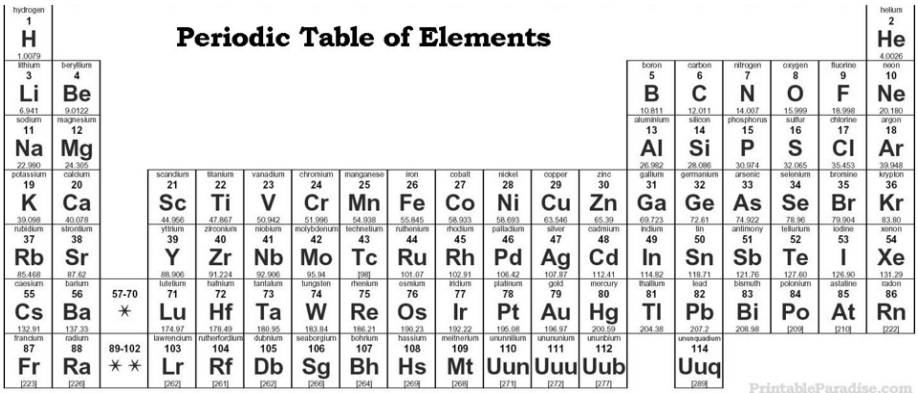
A) Oxygen

B) Fluorine

C) Hydrogen

D) Chlorine

E) Sodium



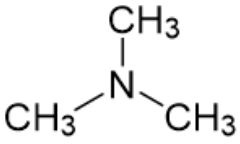
2 For each pair of atoms, describe the type of bond that is expected to form between them.

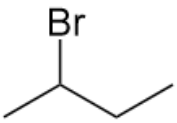
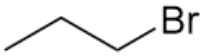
	LiBr	CH	NH
A)	polar covalent	polar covalent	polar covalent
B)	ionic	polar covalent	ionic
C)	ionic	nonpolar covalent	nonpolar covalent
D)	ionic	nonpolar covalent	polar covalent
E)	polar covalent	polar covalent	nonpolar covalent

4

Which of the following represents a pair of constitutional isomers?

I. H_2O and H_3O^+

II.  and $CH_3CH_2CH_2NH_2$

III.  and 

A) I only

B) II only

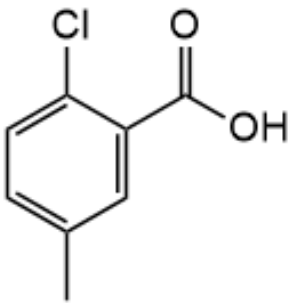
C) III only

D) II and III only

E) I, II and III

5

How many carbon atoms are in the following structure?



A) 6

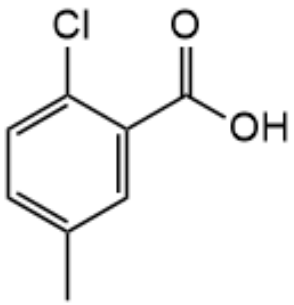
B) 7

C) 8

D) 9

E) 11

How many hydrogen atoms are in the following structure?



A) 4

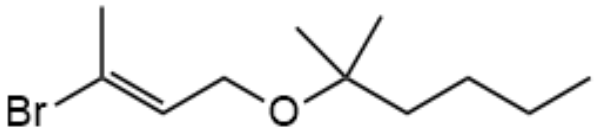
B) 5

C) 6

D) 7

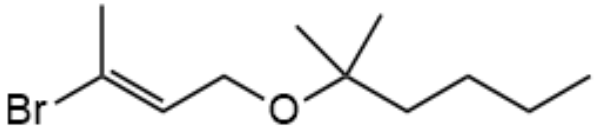
E) 8

6 How many carbon atoms are in the following structure?



A) 10 B) 11 C) 12 D) 13 E) 14

How many hydrogen atoms are in the following structure?

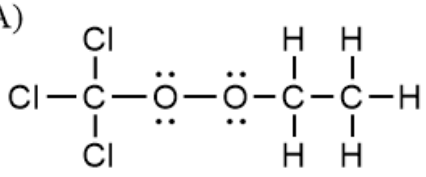


A) 13 B) 11 C) 17 D) 20 E) 21

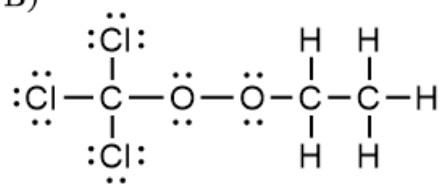
7 $CCl_3CO_2CH_2CH_3$

Which of the following represents the correct Lewis structure of the given condensed formula?

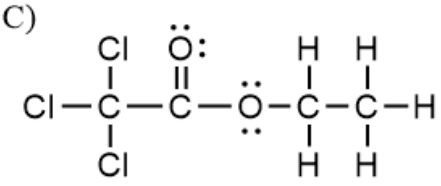
A)



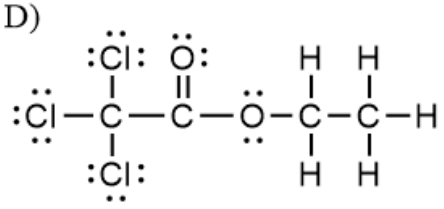
B)



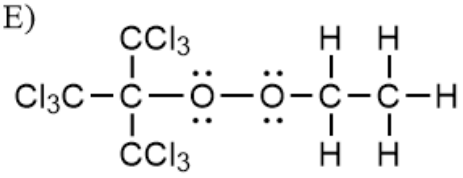
C)



D)

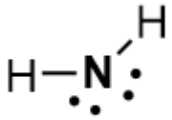
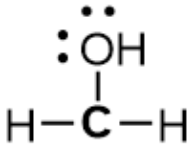


E)



8

What is the formal charge on each of the following highlighted atoms?

			**H:**
A)	+1	-1	0
B)	-1	-1	0
C)	0	-1	-1
D)	-1	+1	-1
E)	-1	+1	0