

Announcements – Lecture XI – Tuesday, Oct 20th

1. Third Lab – Saturday, October 24th ... 1-4pm ... ISB 155/160 (A-E)

a) *Print lab prior to coming to lab -- use the 'Print Friendly Version' located on the top left hand side of the page – this is the version that contains the 'Data Sheet' that you will hand in upon completing the lab.*

b) *Second set of Lab Owls will appear in Owl after this lab. There are a total of 4 sets of Lab Owls and they are worth 25% of the Lab Grade.*

2.



iClicker:

Choose any letter: A-E

3.7

C

Group V:

What Is a Covalent Bond and How Does One Form?

Drawing Lewis Structures of Covalent Compounds

Organic Molecules



C: 2(4)

H: 6(1)

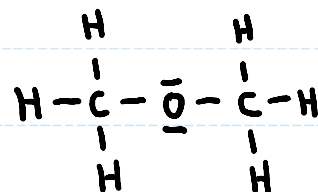
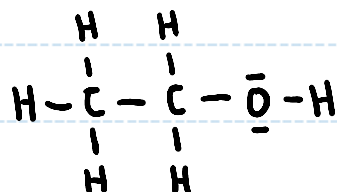
O: 6

8xBP -16

4

2xLP -4

0



How many C-H bonds are there in C_2H_6O

a) 3

b) 4

c) 5 ✓

d) 6 ✓

e) Help



How do I know which one?

Does it matter?

Notes

When dealing with organic molecules we can assume with some degree of certainty that the "Octet Rule" is not violated and thus:

C: 4 bonds, 0 lone pairs.

H: 1 bond.

N: 3 bonds, 1 lone pair.

O: 2 bonds, 2 lone pairs.

Halides: 1 bond, 3 lone pairs.



3.7

C

Group V:

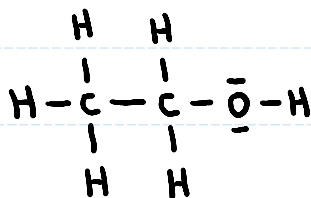
What Is a Covalent Bond and How Does One Form?

Drawing Lewis Structures of Covalent Compounds

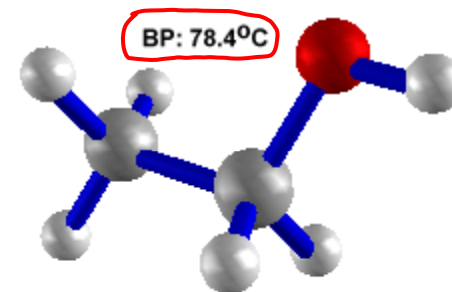
Organic Molecules



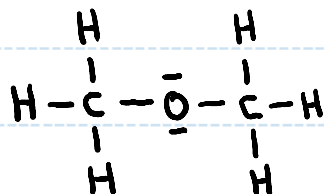
↳ Alcohol functional group



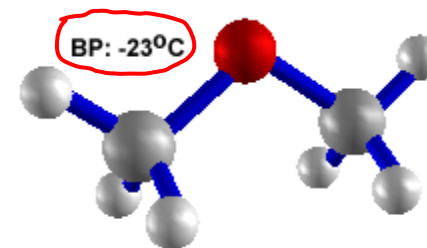
Ethanol



↳ ether



Dimethyl ether



3.7

What Is a Covalent Bond and How Does One Form?

C

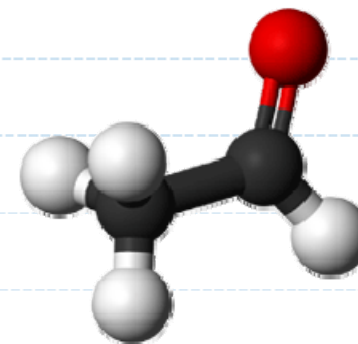
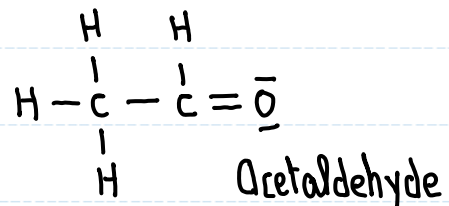
Drawing Lewis Structures of Covalent Compounds

Group V:

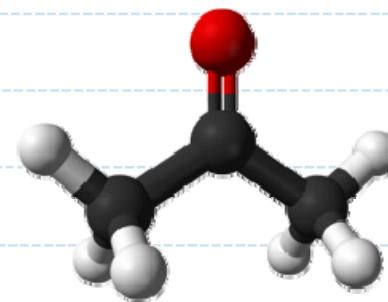
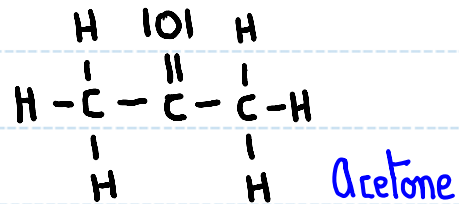
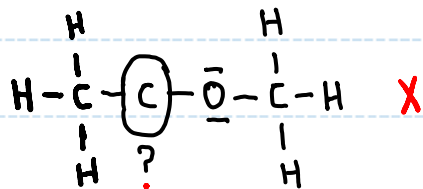
Organic Molecules



↳ Aldehyde



↳ Ketone



3.7

What Is a Covalent Bond and How Does One Form?

C

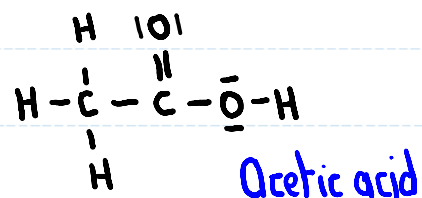
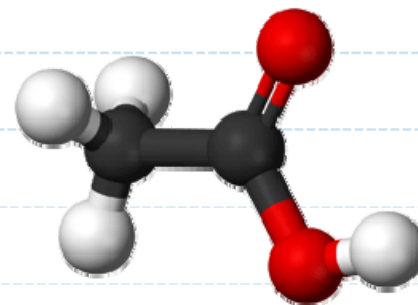
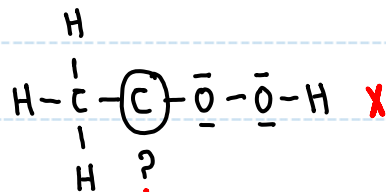
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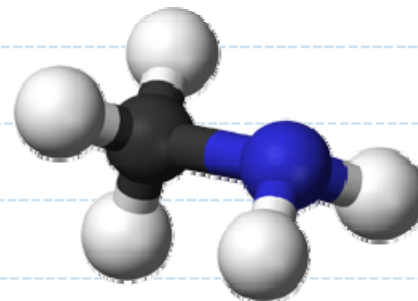
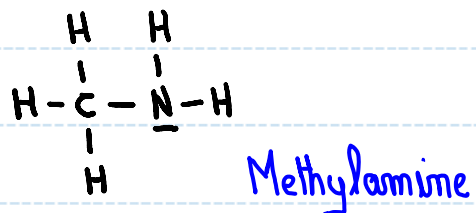
Organic Molecules



↳ Carboxylic acid

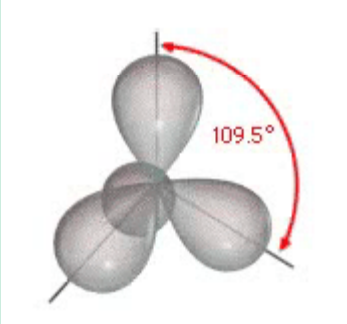
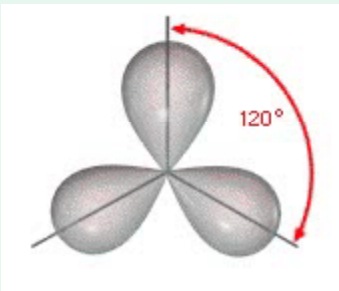
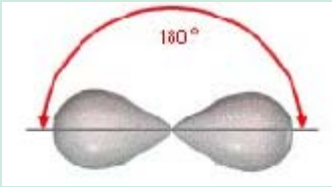


↳ Amine (base)



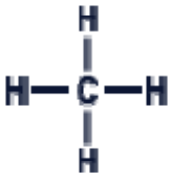
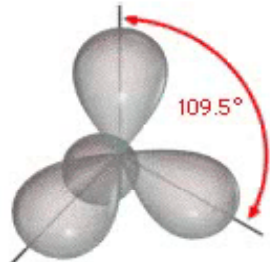
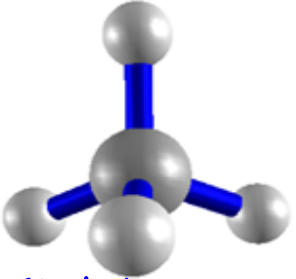
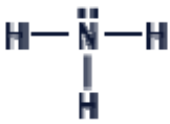
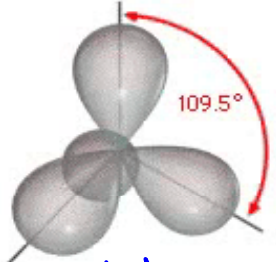
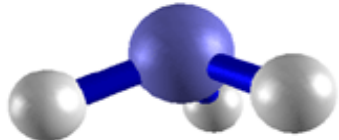

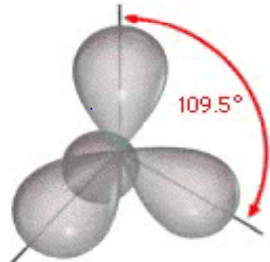
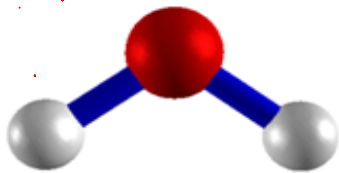
3.10 Molecular Geometries

Balloons – Shapes – Angles

No of Balloons	Shape	Name	Angle
4		Tetrahedron	$\sim 109^\circ$
3		Trigonal planar	120°
2		Linear	180°

3.10 Molecular Geometries and Bond Angles

Molecular Geometry Worksheet ... Fall 2008 ... Whelan ... Page 1

Lewis Structure	Classification	X+E	Parent Geometry	Molecular Geometry	Bond Angle	Polarity
CH_4  A: Central atom X: Attachments on A E: Lone Pairs on A	AX_4E_0	<u>4</u>	Electron Pair Geometry  Tetrahedron	 Tetrahedron	<u>$\sim 109^\circ$</u>	
NH_3 	AX_3E_1	<u>4</u>	 Tetrahedron	 Trigonal pyramid	<u>$\sim 109^\circ$</u>	
H_2O 	AX_2E_2	<u>4</u>	 Tetrahedron	 Angular/Bent ($\sim 109^\circ$)	<u>$\sim 109^\circ$</u>	