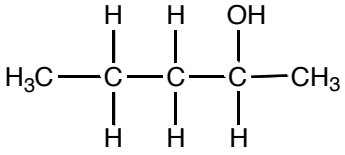
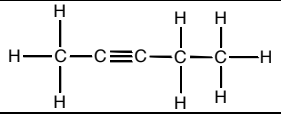
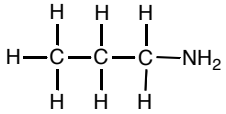
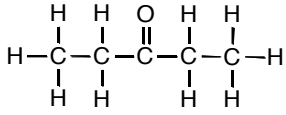
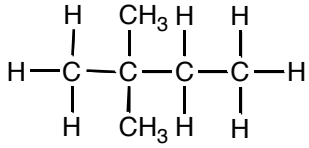
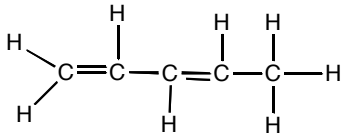
Chemistry 100 Name:_____

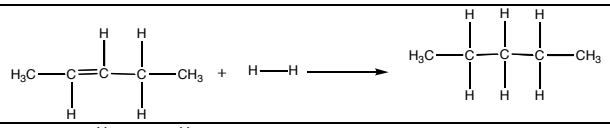
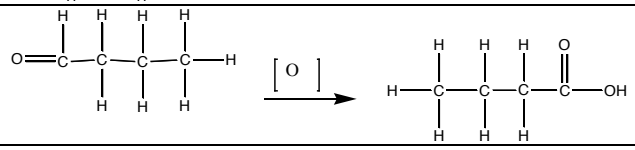
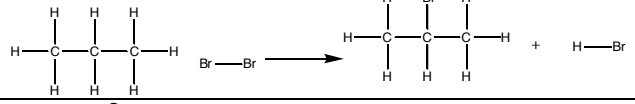
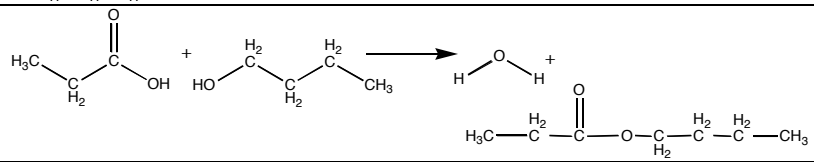
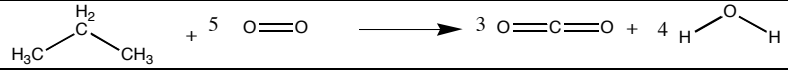
Exam 4

Complete the following table. Name the compounds that are given with the rules learned in class. For the class of compound put one of the following, alkane, alkene, alkyne, aromatic, polymer, primary alcohol, secondary alcohol, tertiary alcohol, thiol, ether, aldyhyde, ketone, carboxylic acid, ester, aromatic, or amine. Where the name is given draw the complete structure showing all bonds and all atoms, including hydrogen. (30 points)

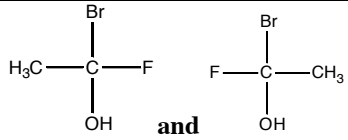
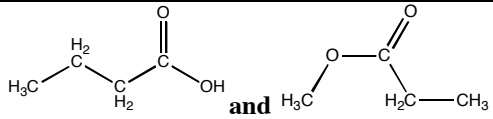
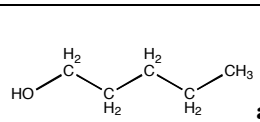
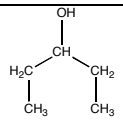
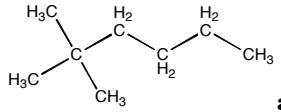
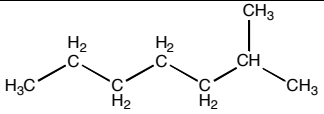
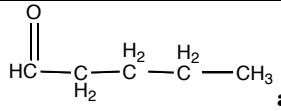
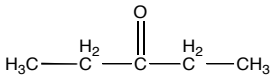
#	Name	Structure	Class of compound
1.			
2.			
3.	**Pentanoic acid**		
4.	**4-octanone**		
5.			
6.			
7.			
8.	**2-butene**		
9.			

10.	**3-methyloctane**		

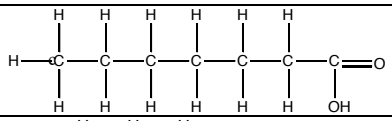
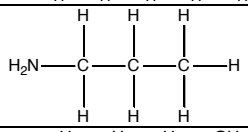
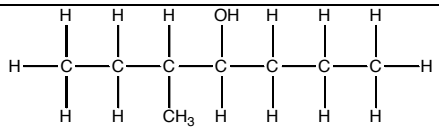
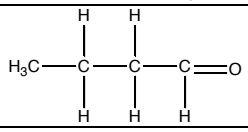
For the following, write the type of reaction that is shown from the following choices, Addition, Oxidation, Substitution, Condensation, Hydrolysis, Neutralization. (12 points)

#	Reaction	Type
11.		
12.		
13.	**alcohol + alcohol → ether + water**	
14.		
15.		
16.		

For the following pairs of molecules, state the type of isomerism that is present from the following list: skeletal, positional, functional, geometrical, optical, none, or same compound. (10 points)

#		Type of isomerism
17.	 **and**	
18.	 **and**	
19.	 **and** 	
20.	 **and** 	
21.	 **and** 	

From the following compounds or types of compounds state the name of the functional group, hydroxyl, carbonyl, carboxyl, amino. (10 points)

#		Functional Group
22.	**aldehyde**	
23.		
24.		
25.		
26.		

For the following classes state some of the uses of the class of molecules. (4 points)

#	Use	Class
27.		**aromatic**
28.		**amine**
29.		**ether**
30.		**alcohol**

For the following formula C_7H_{16} draw all of the possible skeletal isomers and write the name of each. (10 points)

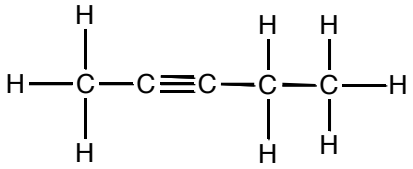
How many covalent bonds does each of the following elements usually have in organic compounds? (6 points)

#	element	Number of bonds
31.	**N**	
32.	**Cl**	
33.	**C**	

For the following state if the property given best describes organic or inorganic compounds (6 points)

#	Property	Organic or inorganic
34.	**Burns easily**	
35.	**electrolytes**	
36.	**Covalent bonds**	

State if the following molecules or class of compounds are saturated or unsaturated (6 points)

#	Compound or class of compound	Saturated or unsaturated
37.	Alkenes	
38.		
39.	**Alkanes**	

For the following list the class of compound produced in the given reaction (6 points)

#	Reaction	Class produced
40.	**Oxidation of a secondary alcohol**	
41.	**Addition of water to an alkene**	
42.	**Condensation of 2 alcohols**	**Water +**