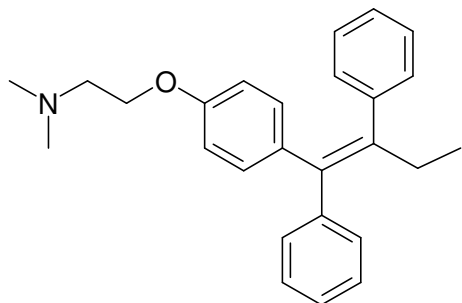Name:_____

Organic Chemistry Test #1 – Structures and Nomenclature

1. For each of the following structures determine the degree of unsaturation and use this information to determine the complete chemical formula. Please note that the saturation formula is given in the next question.
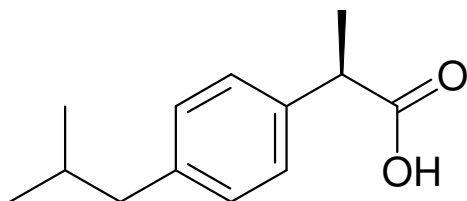

deg. unsat =

formula =

be careful, those are methyl groups attached to the nitrogen

2-[4-[(Z)-1,2-diphenylbut-1-enyl]phenoxy]-
N,N-dimethyl-ethanamine

/4

deg. unsat =

formula =

(2R)-2-(4-isobutylphenyl)propanoic acid

/4

2.   H = [2C + 2] – 2(deg. unsat) – X + N
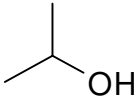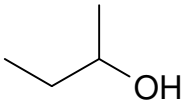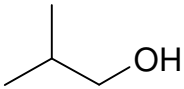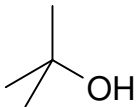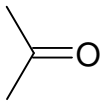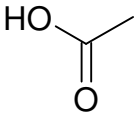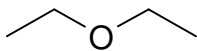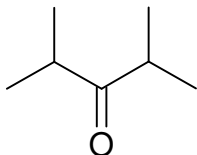
    The above saturation formula can be used to determine the degree of unsaturation for any organic compound. This information can be useful when trying to determine the various combinations of functional groups and rings that make possible a given chemical formula. For each of the following, write the possible combinations of functional groups and rings that can result in the given formula. Marks deduced for incorrect answers.
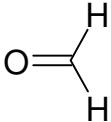
$C_7H_{16}O$ two answers	C_8H_{14} three answers
$C_6H_{13}NO$ seven answers	

/6

/14

3. Provide common names and I.U.P.A.C. names for each of the following.
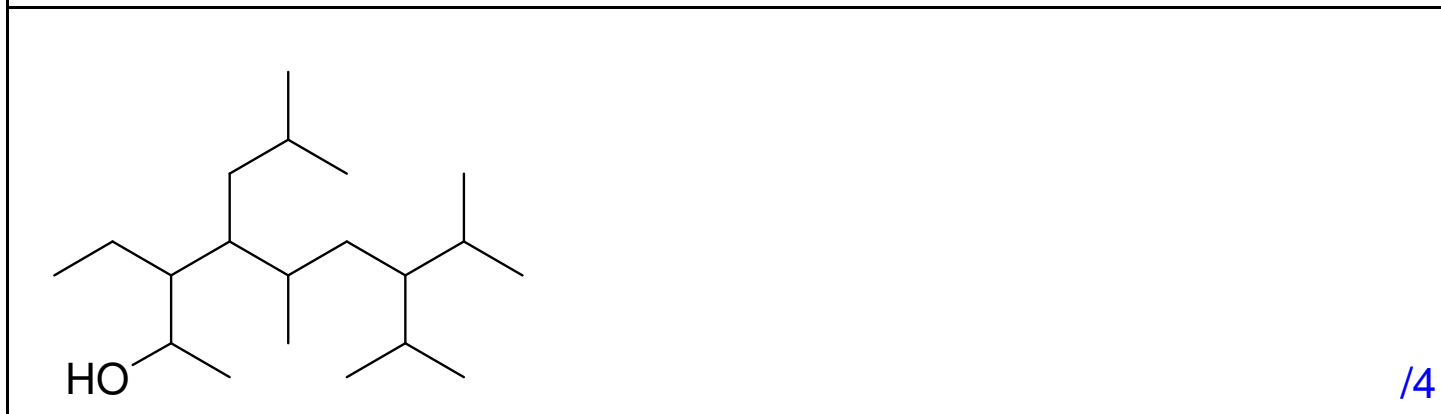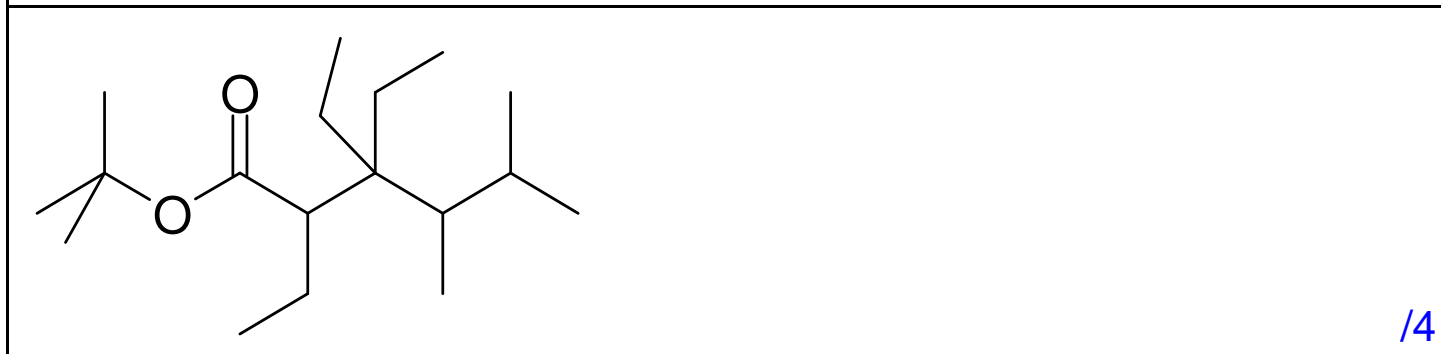   If more than one common name exists, include both. Be sure to follow
    the rules when writing I.U.P.A.C. names. One mark per name

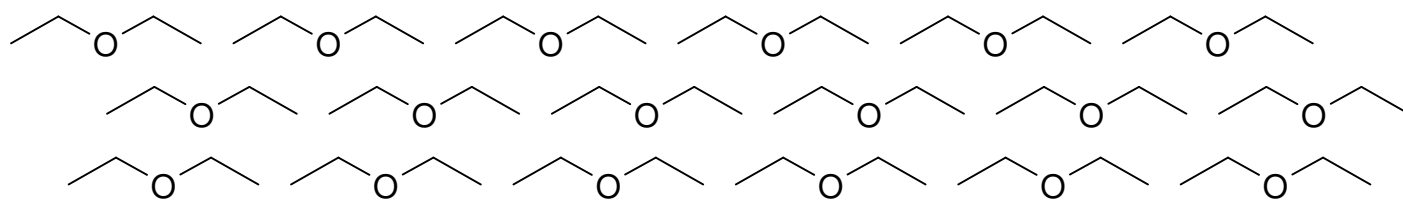|	Common Names	I.U.P.A.C.
CH₃CH₂—OH (OH)		
(CH₃)₂CH—OH		
CH₃CH₂CH(OH)CH₃		
(CH₃)₂CHCH₂—OH		
(CH₃)₃C—OH		
CH₃COCH₃		
HO—C(=O)CH₃		
O=CH—H		
☰		
CH₃CH₂—O—CH₂CH₃		//////////////
(CH₃)₂CH—CO—CH(CH₃)₂		

/13   /10

/23

4.   Write complete I.U.P.A.C. names for each of the following:

/4

/4

/4

/4

Ether Flock in Formation!!!

/16

5. Provide all structural isomer for this formula. Be sure to consider and unsaturation considerations that should be considered. Present your work in an organized fashion. Marks will be deduced for disorder. Also, marks will be deduced for duplicate (or triplicate etc. structures). I thing there are 17 possible structures. May I suggest organization based on same carbon framework but different Br locations.

$$C_6H_{13}Br$$