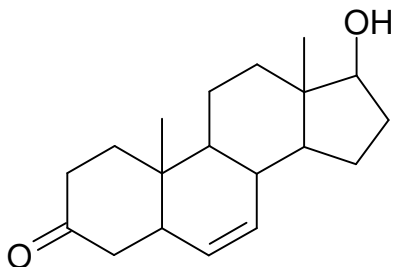


Name: _____

Organic Chemistry Test #1 - Structures and Nomenclature

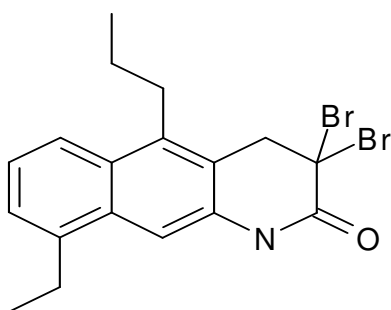
1. For each of the following structures determine the degree of unsaturation and use this information to determine the complete chemical formula. Please note that the saturation formula is given in the next question.



testosterone

$$\text{deg. unsat} = 6$$

$$\text{formula} = \text{C}_{19}\text{H}_{28}\text{O}_2$$



$$\text{deg. unsat} = 9$$


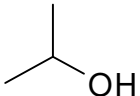
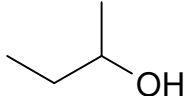
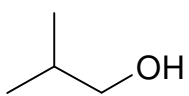
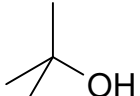
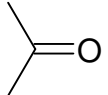
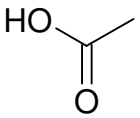
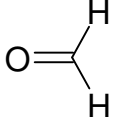

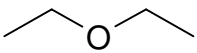
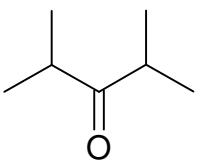
$$\text{formula} = \text{C}_{18}\text{H}_{19}\text{NOBr}_2$$

2.
$$\text{H} = [2\text{C} + 2] - 2(\text{deg. unsat}) - \text{X} + \text{N}$$

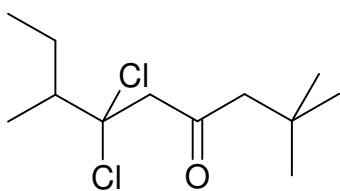
Use the above saturation formula to determine the degree of unsaturation and hence the possible combinations of functional groups (and rings) that would make possible each formula. (1 mark per correct response, some marks may be deduced for extra incorrect answers)

$\text{C}_4\text{H}_{10}\text{O}$:	alcohol ether	
$\text{C}_6\text{H}_{12}\text{O}_2$:	carboxylic acid ester aldehyde, alcohol aldehyde, ether ketone, alcohol ketone, ether	alcohol, alcohol, alkene alcohol, alcohol, ring ether, ether, alkene ether, ether, ring alcohol, ether, alkene alcohol, ether, ring

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

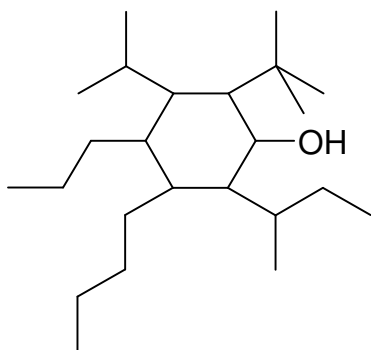
	Common Names	I.U.P.A.C.
	methanol	1-methanol
	isopropyl alcohol	2-propanol
	secbutyl alcohol	2-butanol
	isobutyl alcohol	2-methyl-1-propanol
	t-butyl alcohol	2-methyl-2-propanol
	dimethyl ketone acetone	2-propanone
	acetic acid	ethanoic acid
	formaldehyde	methanal
	acetylene	1-ethyne
	diethyl ether ether	
	diisopropyl ketone	2,4-dimethyl-3-pentanone

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



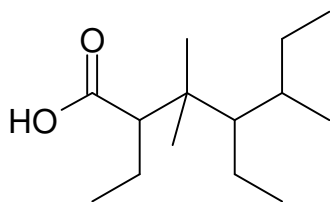
6,6-Dichloro-2,2,7-trimethyl-nonan-4-one

6,6-dichloro-2,2,7-trimethyl-4-nonanone



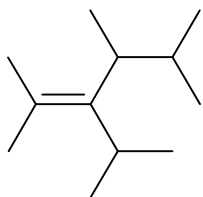
3-Butyl-2-sec-butyl-6-tert-butyl-5-isopropyl-4-propyl-cyclohexanol

3-butyl-6-t-butyl-5-isopropyl-4-propyl-2-secbutyl-1-cyclohexanol



2,4-Diethyl-3,3,5-trimethyl-heptanoic acid

2,4-diethyl-3,3,5-trimethylheptanoic acid



3-Isopropyl-2,4,5-trimethyl-hex-2-ene

3-isopropyl-2,4,5-trimethyl-2-hexene

5. Provide all structural isomer for this formula. Present your work in an organized fashion. Marks will be deducted for disorder. Also, marks will be deducted for duplicate (or triplicate etc. structures).

