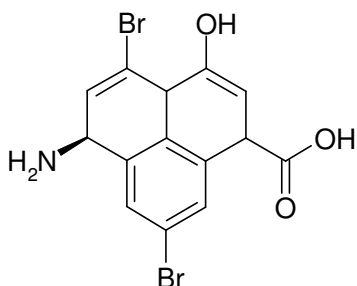


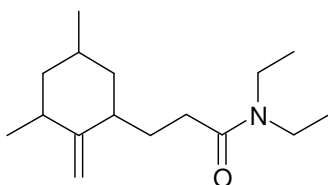
Organic Chemistry Test #1 - Structures and Nomenclature

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 = 9

formula = $C_{14}H_{11}NO_3Br_2$



deg. unsat = 3


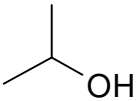
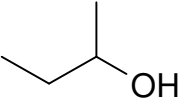
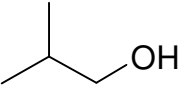
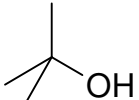
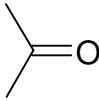
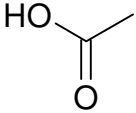
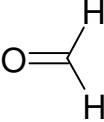

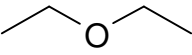
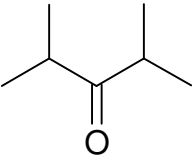
formula = $C_{16}H_{29}NO$

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

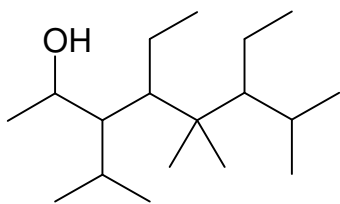
Use the above saturation formula to determine the degree of unsaturation and hence the possible combinations of functional groups (and rings) that would make possible each formula. (1 mark per correct response, some marks may be deduced for extra incorrect answers)

$C_4H_{10}O$	alcohol ether
$C_6H_{12}O_2$	carboxylic acid ester aldehyde + alcohol aldehyde + ether ketone + alcohol ketone + ether alkene + alcohol + alcohol alkene + alcohol + ether alkene + ether + ether ring + alcohol + alcohol ring + alcohol + ether ring + ether + ether

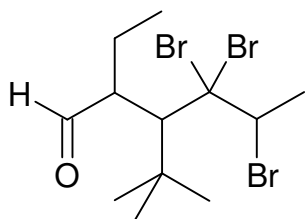
3. Provide common names and I.U.P.A.C. names for each of the following. If more than one common name exists, include both. Be sure to follow the rules when writing I.U.P.A.C. names. One mark per name

	Common Names	I.U.P.A.C.
	methyl alcohol	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

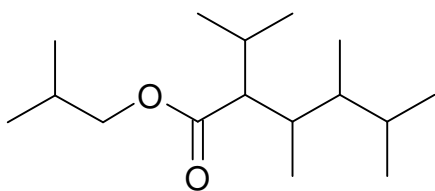
4. Write complete I.U.P.A.C. names for each of the following:



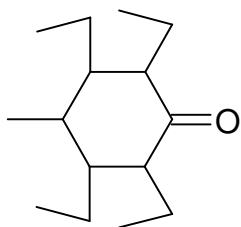
4,6-diethyl-3-isopropyl-5,5,7-trimethyl-2-octanol



4,4,5-tribromo-3-t-butyl-2-ethylhexanal



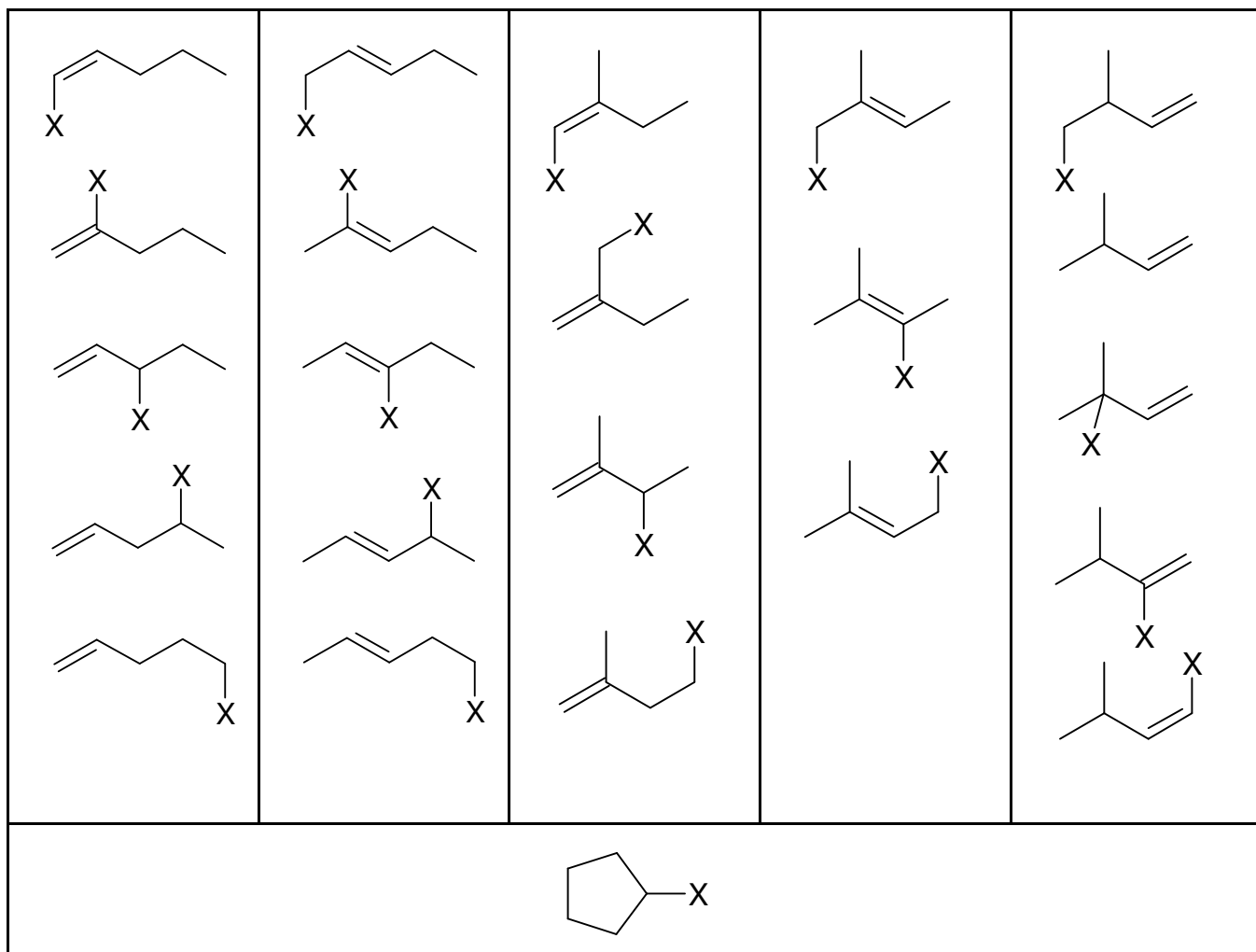
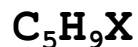
isobutyl 2-isopropyl-3,4,5-trimethylhexanoate



2,3,5,6-tetraethyl-4-methylcyclohexanone

(a.k.a killer ketone!)

5. Provide all structural isomer for this formula. Be sure to consider and unsaturation considerations that should be considered. I think that there are 23. Present your work in an organized fashion. Marks will be deducted for disorder. Also, marks will be deducted for duplicate (or triplicate etc. structures). Use only five and six member rings. The correct formula you have been waiting for is!!!!



Attach of the Killer Ketones!!! (march march march)

