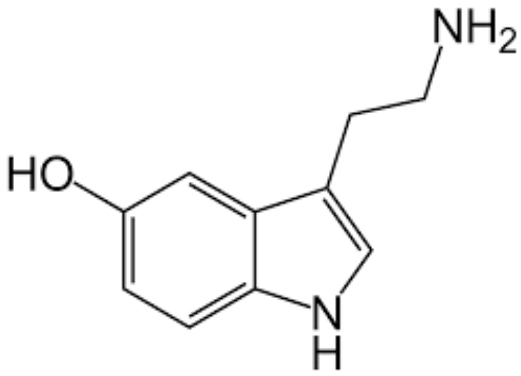
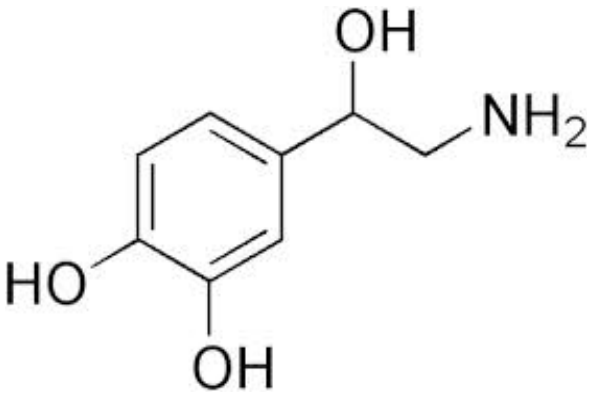
Name:_____

SCH 4U Organic Test – Part 1

1. State the degrees unsaturation and the chemical formula for serotonin and norepinephrine

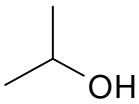
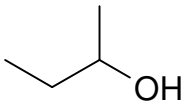
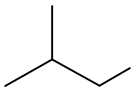
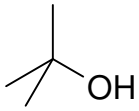
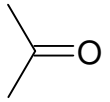
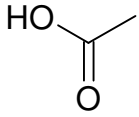
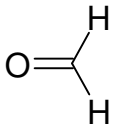
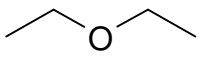
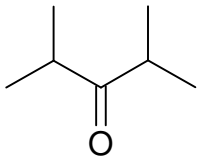
	
degree unsat = **6**	degree unsat = **4**
formula = **$C_{10}H_{12}N_2O$**	formula = **$C_8H_{11}NO_3$**

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

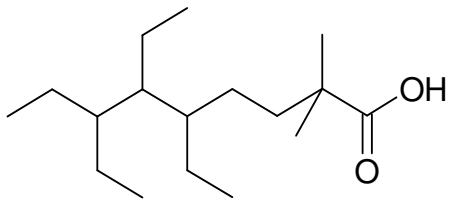
Use the above saturation formula to determine the degree of unsaturation and hence the possible combinations of functional groups (and rings) that would make possible each formula. (1/2 mark per correct response, some marks may be deduced for extra incorrect answers)

$C_{12}H_{22}$ **– alkene alkene – alkene ring – ring ring – alkyne**	$C_{12}H_{24}O$ **– aldehyde – ketone – alkene alcohol – alkene ether – ring alcohol – ring ether**
$C_6H_{13}NO$ **– amide – aldehyde amine – ketone amine – alkene alcohol amine – alkene ether amine – ring alcohol amine – ring ether amine**	

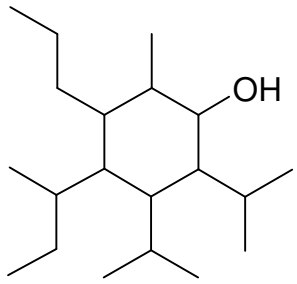
3. Provide common names and I.U.P.A.C. names for each of the following. If more than one common name exists, include both. Be sure to follow the rules when writing I.U.P.A.C. names. One mark per name

	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-buty 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**

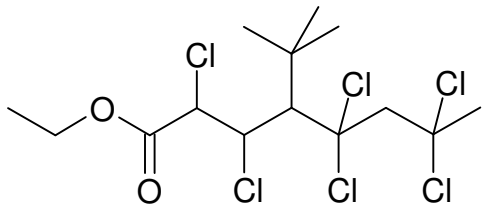
4. Provide full and correct I.U.P.A.C. names:



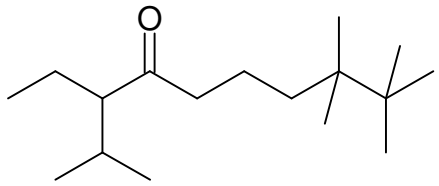
5,6,7-triethyl-2,2-dimethylnonanoic acid



4-secbutyl-2,3-diisopropyl-6-methyl-5-propyl-1-cyclohexanol



ethyl 4-t-butyl-2,3,5,5,7,7-hexachlorooctanoate



3-ethyl-2,8,8,9,9-pentamethyl-4-decanone

5. Provide all structural isomer for this formula. Be sure to consider unsaturation considerations that should be considered. I think that there are 22. Present your work in an organized fashion. Marks will be deduced for disorder. Also, marks will be deduced for duplicate (or triplicate etc. structures). Use only five and six member rings.

C_5H_9X