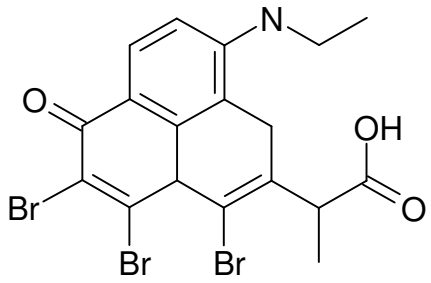
K	C	A	T
13		28	34

/75 = %

Name:_____

Organic Chemistry Test #1 – Structures and Nomenclature

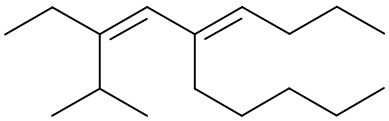
1. For each of the following structures determine the degree of unsaturation and use this information to determine the complete chemical formula. Please note that the saturation formula is given in the next question.



deg. unsat = _____

formula =

/4A



deg. unsat = _____

formula =

/4A

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

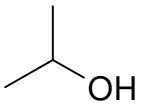
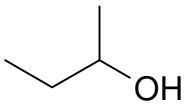
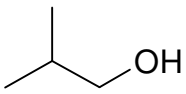
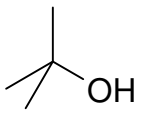
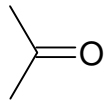
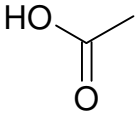
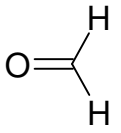
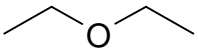
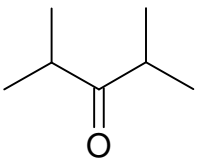
Use the above saturation formula to determine the degree of unsaturation and hence the possible combinations of functional groups (and rings) that would make possible each formula. (1/2 mark per correct response, some marks may be deduced for extra incorrect marks)

C_5H_{12}	$C_6H_{15}N$
C_6H_{12}	
$C_6H_{12}O$	

/10A

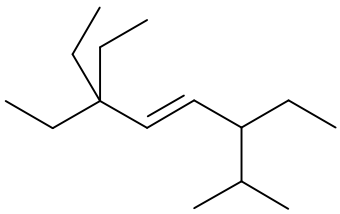
K	C	A	T
		18	

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

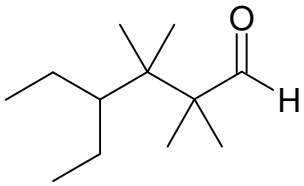
	Common Names	I.U.P.A.C.
		
		
		
		
		
		
		
		
		
		

K	C	A	T
13		10	

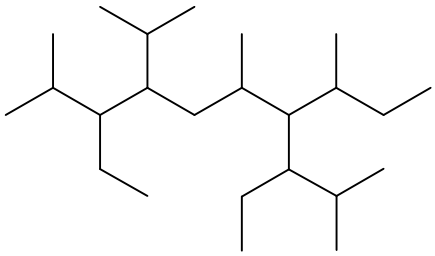
4. Write complete I.U.P.A.C. names for each of the following:



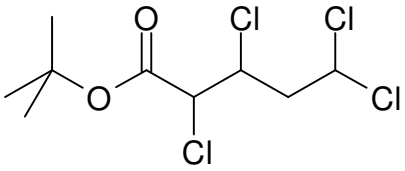
/4



/4



/4



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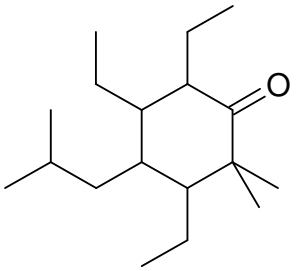

/4

K	C	A	T
		20	

5. For each of the following chemical formula write structures for all possible structural isomers. If more than one of the same structure is drawn, no marks will be given for either structure. It may be useful to determine the combination of functional groups etc that could be used before you start. (See question #2 for saturation formula) Use only five and six member rings.

a) C_3H_6O

/6

b) $C_5H_{11}Br$

/8

K	C	A	T
			14