HOMEWORK ASSIGNMENT #6 ORGANIC CHEMISTRY I (20 pts)

**Calculating Product Yield from R values; Naming Alkyl Halides**

 **(due Monday 14 October)**

 **Your name:\_\_\_\_\_\_\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 pt**

6.1a. Draw and name (using IUPAC rules) the 4 possible mono-bromination compounds of 3-methylpentane . (4 pts)

A B





1-bromo-3-methylpentane 3-bromo-3-methylpentane

C D





 1-bromo-2-ethylbutane

2-bromo-3-methylpentane (*parent chain* ***must*** *contain Br as substituent)*

6.1b Compute the expected % yields of A-D you’ve drawn above given the following relative yield (R) data below: (see also- exercise 7 and supplement 7). 5 pts

 **Site degree** **Relative yield/H for radical Bromination =Rn**

 1o  1

 20` 50

 30 750

**Compound expected % yield x =#equiv. H n=degree x\*Rn**

A \_\_\_\_\_0.6\_\_\_\_\_\_\_\_\_\_\_\_\_ 6 1o 6

B \_\_\_78.2\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 3o 750

C \_\_\_20.9\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4 2o  200

D \_\_\_\_0.3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3 1o 3

 (=100\*x\*Rn/959)

 Sum=**959**

6.1. Name or draw us: (1 pt each answer) 10 pts total





**a) b)**

**1-methylbutyl bromide 4-ethyl-1,2,5-trimethyl-3-cyclopropylhexyl chloride**

**(functional name) (functional name)**

**2-bromopentane 2-chloro—5-ethyl-3,6-dimethyl-4-cyclopropylheptane**

**(substitutive= IUPAC name) (substitutive= IUPAC name)**

 ***a)c in cyclo ignored; just substituent Carbon count determines alphabetization***

***b)Pick parent chain that maximizes substituent count)***



**c)  d)**

 **4-chloro-5-methyl-3-hexanol**

**draw: 1,4-dimethylhexyl fluoride here e)**

 **(substitutive =IUPAC name )**



 **2-chloro-1-ethyl-3-methylbutyl alcohol**

**(functional name)**

 ***(OH alcohol group takes precedence in naming)***

 **f) \_\_\_\_\_\_\_\_dichlorodifluoromethane\_\_\_\_\_\_**

 **Draw 1,1,2-trimethylbutyl bromide IUPAC name for Freon 12**



**Draw isohexyl chloride**