HOMEWORK ASSIGNMENT #3 ORGANIC CHEMISTRY II

(alkynes, ch 9)

(due Wednesday 15 February )

**Your name :\_\_\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (11 points total)**

**3.1 . a) Name or draw us: (6 pts)**







1,1-dichloropropyne **3-methyl-6-octyn-1-ol**  \_\_\_\_**acetylene**\_\_\_\_\_\_\_\_\_\_\_\_ Common name

**4-bromo-2-pentyn-1-ol**





1



**51-cyclohexyl-1-hexyne 1-chloro-4-methyl-1-hexen-5-yne 5-(1-methylethyl)-cyclononyne**

**ene takes precedence over yne in #**

**3.2 Write down the steps for the classical Bertholet synthesis of ethyne. (1 pt)**

**1)CaO(s) + 3C)(s) 1800 C  CaC2(s) + CO(g)**

**2) CaC2(s) +2H2O(l) HC≡CH +Ca(OH)2**

**3.3. Starting from 1-butanol, suggest a route to 1-butyne (2 pts)**



**Other routes possible**

**3.4. If we start with the compound below, predict all the possible products of reacting it with KOH/ ethanol (2 pts)**



**4 Mono unsaturated possibilities**

Others are also possible if we consider that dienes and mixed unsaturateds could form like 



**c) Which is the most acidic H in the list below : (1 pt)**

i) **H**-CH2CH3 ii) **H-**CH=CH2 iii) **H**-C≡CH **iv) H-C≡C-CH3**

**4.3) Fill-in (8 points/1 point each correct filled-in box )**

O3

Zn/H+



A) CH3COOH + HCOOH



H2SO4/HgSO4

B) 1-BUTYNE

major

Nao/NH3



C) (E)-4-METHYL-2-PENTENE

C3H7Br

NaNH2

D) in NH3(liq) HC≡C-C3H7 + NaBr

HC≡CH (ethyne)



E)





+ 2HBr gem dihalide