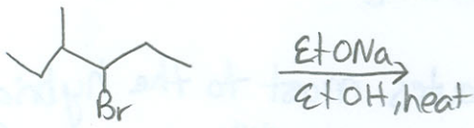
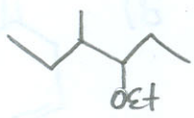
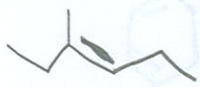
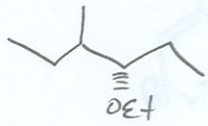
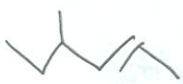
4) What is the major coproduct of the following reaction?



a) 

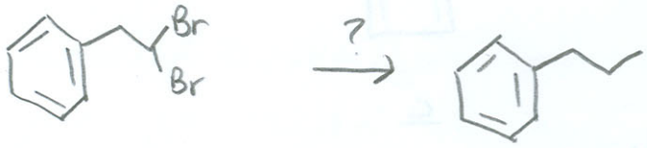
b) 

c) 

d) 

e) a & b

5) Synthesis



a) a 3 $NaNH_2$, mineral oil, 0°c
   b MeBr, DMF

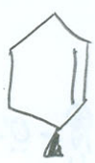
b) a 3 $NaNH_2$, mineral oil, heat
   b MeBr, DMF
   c H_2, Pd

c) a MeONa / MeOH
   b MeBr, DMF

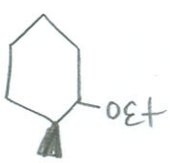
d) a KOH, water
   b H_2, Pd

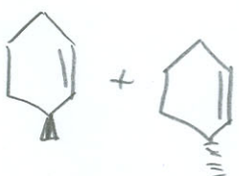
6) Which is the major product of the following reaction?

a) 

b) 

c) 

) 

e) 

7) Identify the major product in reaction of (R)-2-bromopentane with NaCN in DMSO

a) (R) -2- cyanopentane
b) (S) -2- cyanopentane
c) racemic mixture of 2- cyanopentane
d) trans- 2- pentene

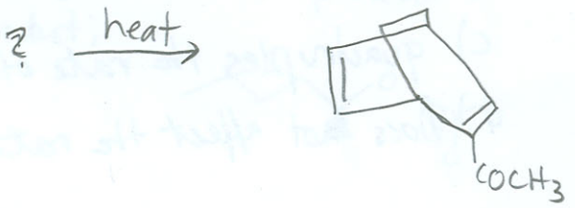
8) When benzene undergoes hydrogenation in the presence of a catalyst, the energy released (the heat of hydrogenation) is:

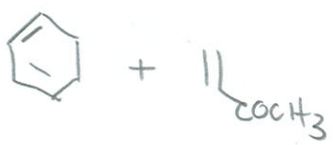
a) the same for cyclohexatriene
b) the same as for 1,3 cyclohexadiene
c) the same as for 1,4 -cyclohexadiene
d) less than for 1,3- cyclohexadiene
e) more than for 1,3 -cyclohexadiene

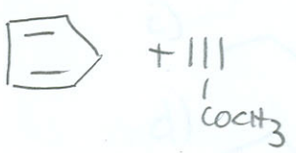
9) Which conjugated diene gives a single product upon 1,2 or 1,4 addition of HCl?

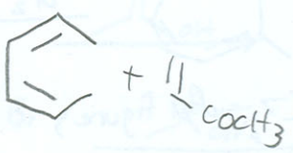
a) butadiene
b) 2-methyl butadiene
c) 1,3-cyclohexadiene
d) 2,3-dimethyl butadiene

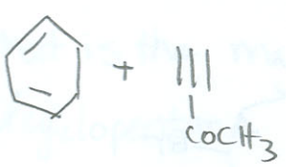
10) What are the reactans needed to accomplish the following reaction?



a) 

b) 

c) 

d) 

11) Which is the major product of the synthesis?

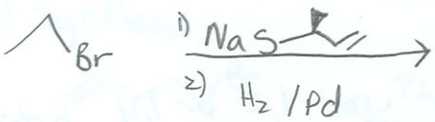
a) 

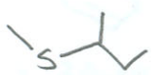
b) 

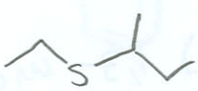
c) 

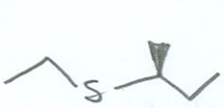
d) 

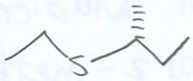
12) What is the major product of the synthesis?



a) 

b) 

c) 

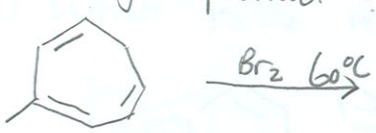
d) 

13) Doubling the amount of CH_3OH in the reaction:

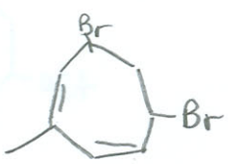
$$C(CH_3)_3Cl + CH_3OH \longrightarrow C(CH_3)_3OCH_3 + HCl$$

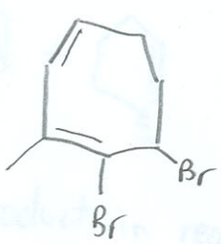
a) Doubles the rate of reaction
b) halves the rate of reaction
c) quadruples the rate of reaction
d) Does not affect the rate of reaction

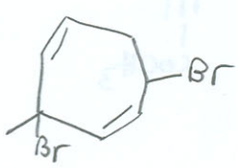
14) Major product?

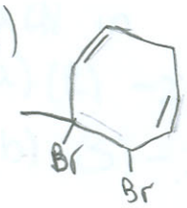


(7-sided figure)

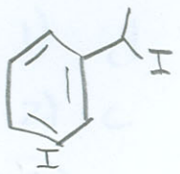
a) 

b) 

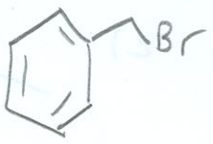
c) 

d) 

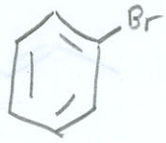
15) Rank the following molecules in order of decreasing reactivity with methanol?



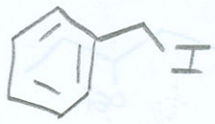
I



II



III



IV

a) III > II > IV > I

b) IV > I > II > III

c) I > IV > II > III

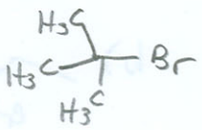
d) I > IV > III > II

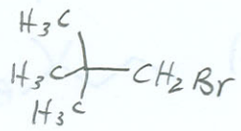
16) Which substrates will react most readily in the reaction?

$R-Br + H_2O \xrightarrow{H_2O} R-OH + HBr$

a) 

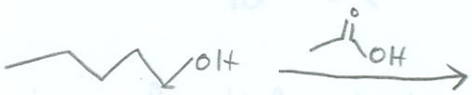
b) CH_3-Br

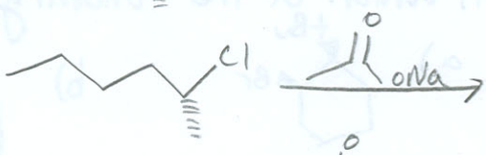
c) 

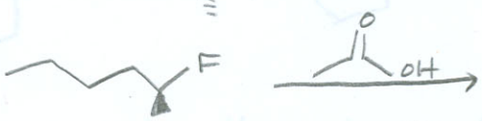
d) 

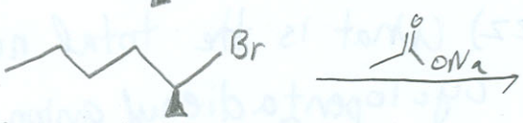
17) Which starting material and reagent could be used most efficiently to form product?

product:

a) 

b) 

c) 

d) 

18) What is the major product in the reaction of 1-chloro-1-methylcyclopentane with potassium tert-butoxide in tert-butylalcohol

a) 

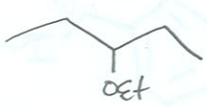
b) 

c) 

d) 

19) What is the major product of the reaction?

$HC \equiv CNa \rightarrow$?

a) 

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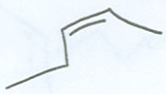
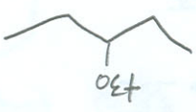
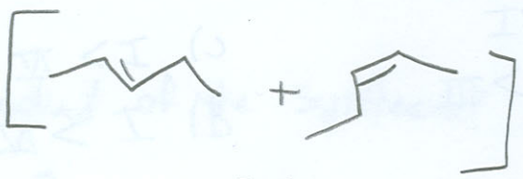
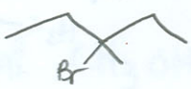
c) 

d) 

70%. +  30%

20) Which alkyl bromide gives primarily a single isomer alkene in high yield upon reaction with sodium methoxide?

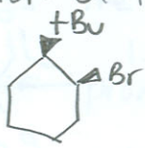
a) 

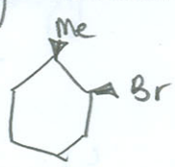
b) 

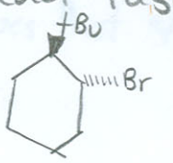
c) 

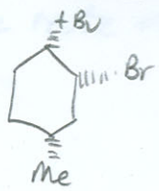
d) 

21) Which of the following molecules will react fastest w/ $NaOEt$?

a) 

b) 

c) 

d) 

22) What is the total number of resonance contributors for cyclopentadienyl anion?

a) 1
b) 2
c) 3
d) 4
e) 5

Test 3 answers

1) d
2) c
3) c
4) b
5) b
6) a
7) b
8) both a) and d) (omitted)
9) c
10) d
11) b
12) c
13) d
14) a
15) c
16) c
17) b
18) a
19) b
20) a
21) a
22) e