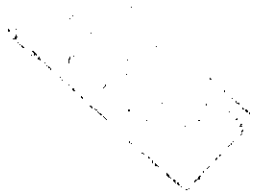


Family Name: _____

First Name: _____

Student Number: _____ Section: _____



Question I _____ out of 24

II _____ out of 55

III _____ out of 18

IV _____ out of 24

V _____ out of 40

VI _____ out of 10

VII _____ out of 10

VIII _____ out of 19

Total _____ out of 200

GOOD LUCK

(10/13) Illustrate the use of each of the following in organic synthesis. One example per reagent is enough. Write chemical equations.

a- Cumene

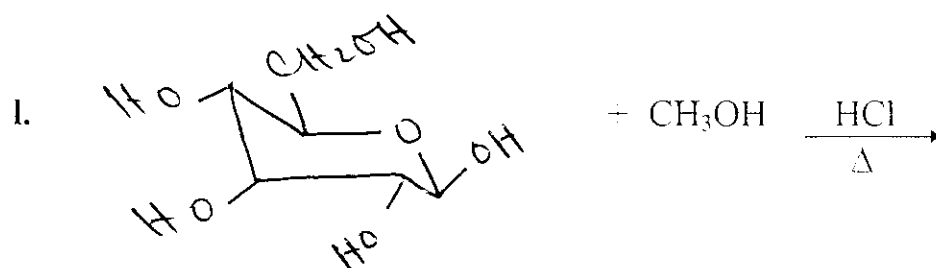
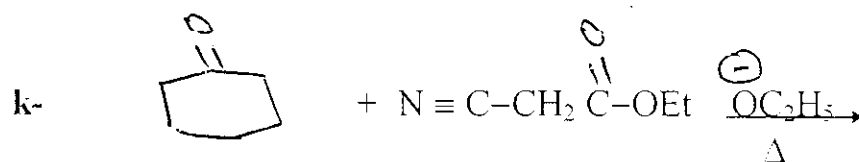
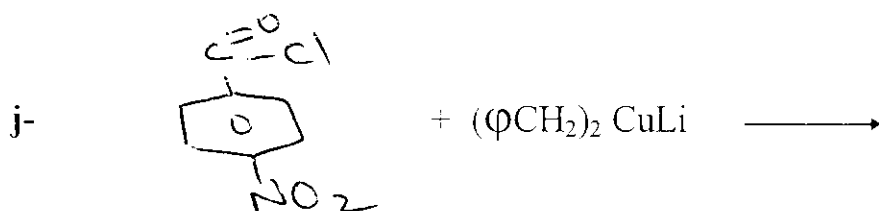
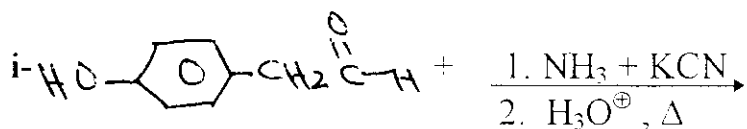
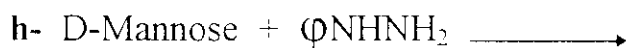
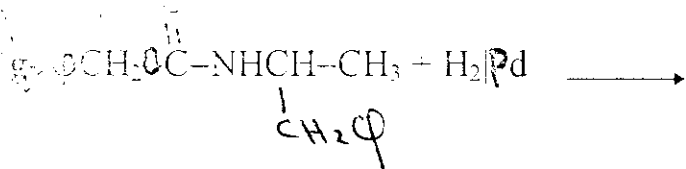
b- Bromine in NaOH

c- Lithium diisopropylamide

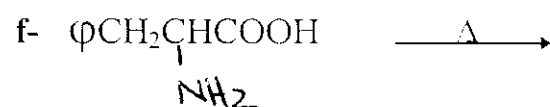
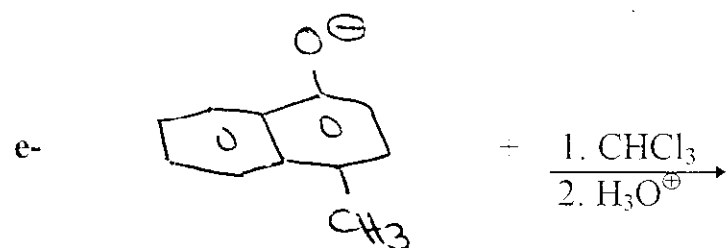
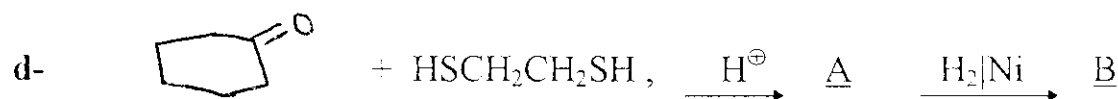
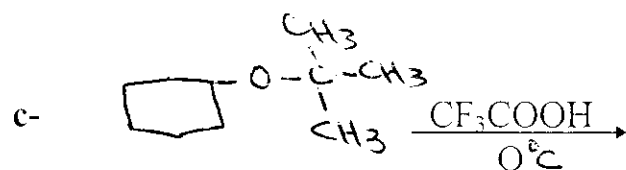
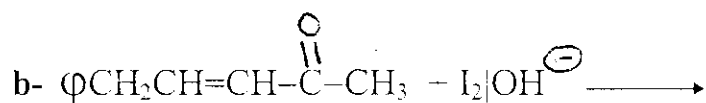
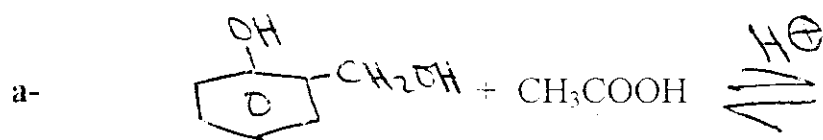
d- Mercuric trifluoroacetate

e- Ethylacetoacetate

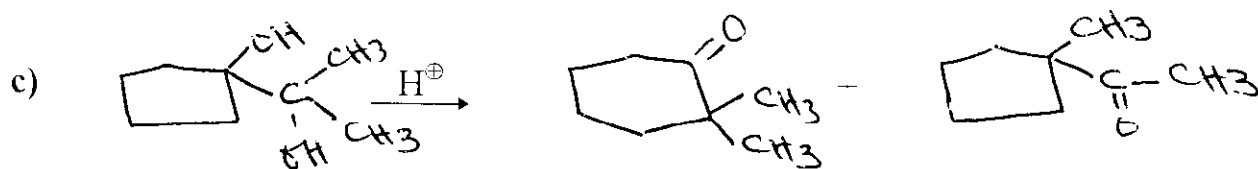
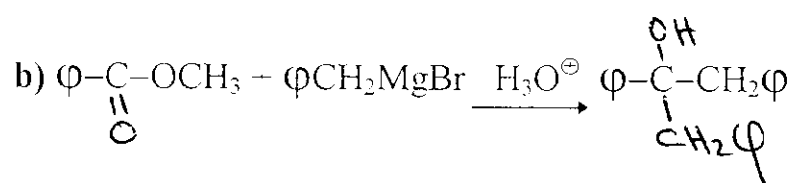
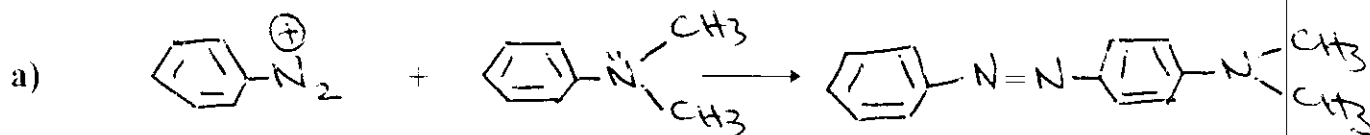
f- Sodium borohydride



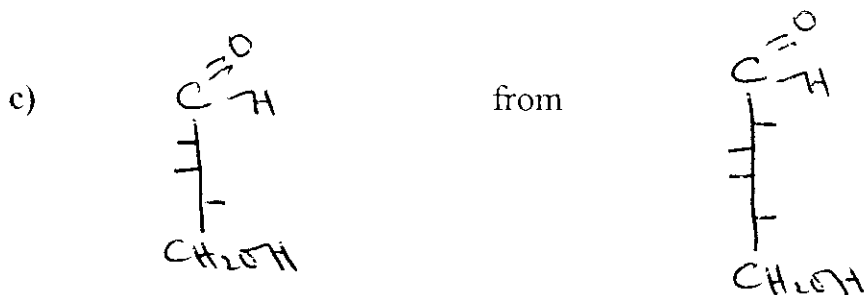
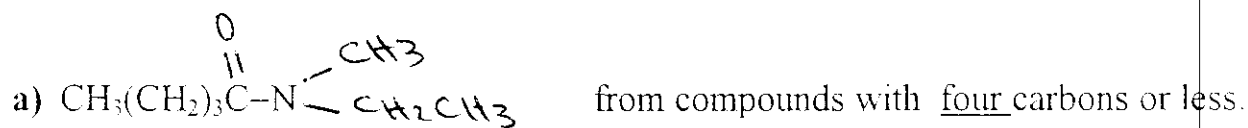
11 (55pts) Complete each of the following reactions specifying the major product where possible. If no reaction takes place write "No Reaction".
Choose any eleven.

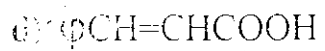


1) (24pts) Give a detailed mechanism for each of the following reactions:

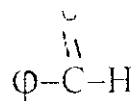


10 (10pts) Write chemical equations to illustrate the synthesis of each of the following from the indicated starting material. You may use any organic and/or inorganic reagents needed. Choose any five.





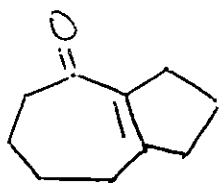
from



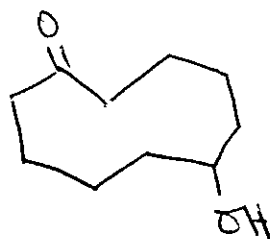
e) p-Nitrobenzaldehyde from

toluene

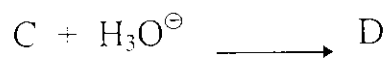
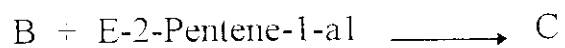
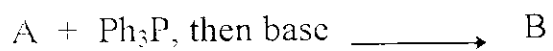
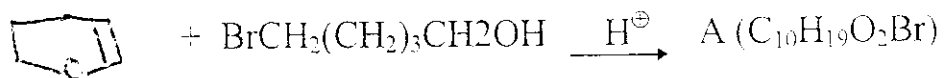
f)



from



10 (10pts) Identify compounds A-E



11 (10pts) Give the structure of the cyclic decapeptide which upon hydrolysis gives the following tripeptides:

ala-leu-gly
gly-ser-ala
ser-ala-gly
try-leu-ala
cys-his-try

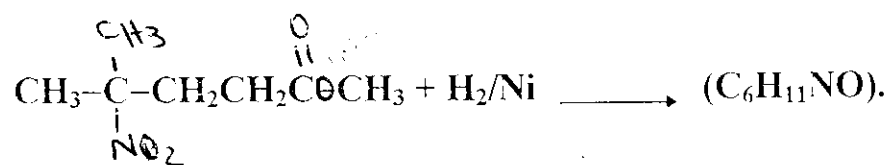
Complete hydrolysis gives the following aminoacid composition ala (2), leu(2), gly(2), his(1), ser(1), cys(1) and try(1).

(19pts)

a- Arrange the following acids in order of decreasing acidity (most acidic first, least acidic last). CH_3COOH , $\text{CH}\equiv\text{C-COOH}$, $\text{CH}_2=\text{CHCOOH}$

b- When D(+) glucose of m.p. 146° is dissolved in water the specific rotation gradually drops from an initial value of $+113^\circ$ to 52.6° . Explain briefly.

c- Give the structure of the final product of the following reaction:



To which family of organic compounds does the product belong ?