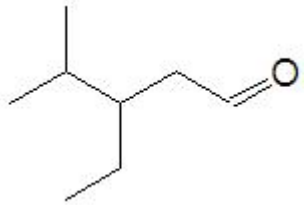
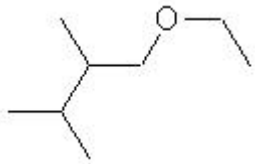
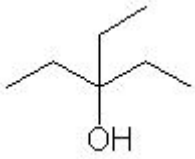
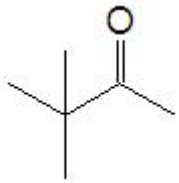
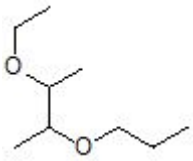
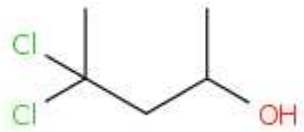
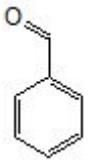
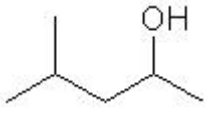
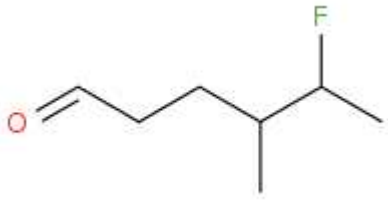
CHE 102 - Extra Practice Exam 2 - Chapter 22-23 Score: _____/165

Name: _____ Class: _____ Date: _____

[20 pt] 1. Give the IUPAC name of the following molecules

(a)  3-ethyl-4-methylpentanal	(b)  6-methyl-2-heptanone
(c)  1-ethoxy-2,3-dimethylbutane	(d)  3-ethyl-3-pentanol
(e)  3,3-dimethyl-2-butanone	(f)  2-ethoxy-3-propoxybutane
(g)  4,4-dichloro-2-pentanol	(h)  benzaldehyde
(i)  4-methyl-2-pentanol	(j)  5-fluoro-4-methylhexanal

[20 pt] 2. Draw the following organic molecules:

(a) 2-ethoxy-2-methyloctane

(b) 3,4-dimethyl-1-pentanol

(c) 2,4-dimethylhexanal

(d) 2,2-dimethyl-3-pentanone

(e) phenol

(f) 1-butoxy-4-hydroxynonanal

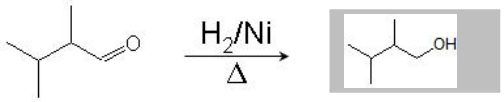
(g) 4-hydroxy-2-heptanone

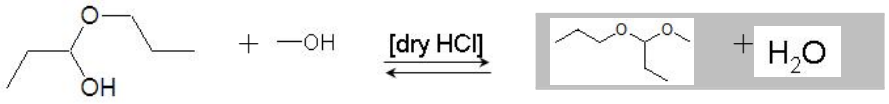
(h) 5-methyl-2-heptanone

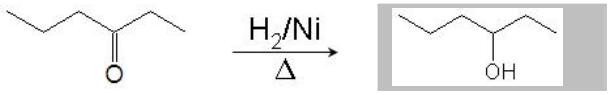
(i) 1,2-butanediol

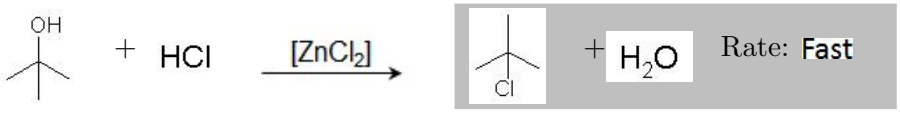
(j) 2-chlorobutanal

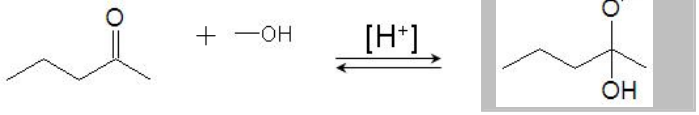
[40 pt] 3. Complete the following reactions in the format given. If one product is favoured in a reaction, circle that product. Include states where appropriate. Be sure to balance any combustion reactions. If no reaction occurs put NR for the products.

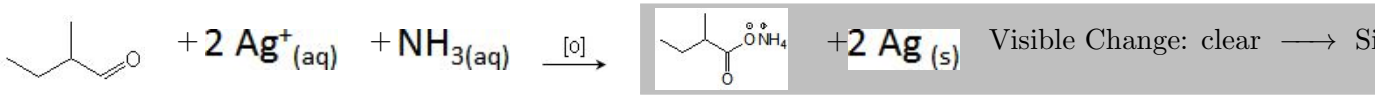
(a) 

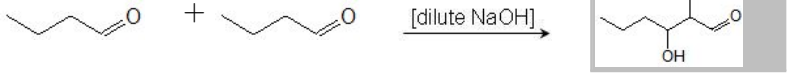
(b) 

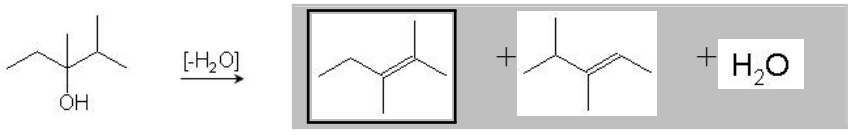
(c) 

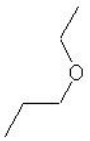
(d) 

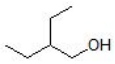
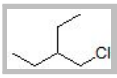
(e) 

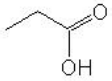
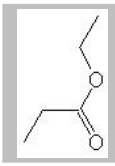
(f) 

(g) 

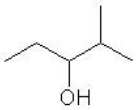
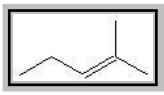
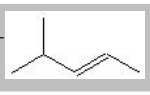
(h) 

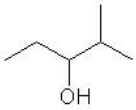
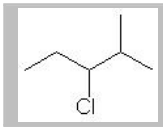
(i)  + ___ O_2 (g) → ___ CO_2 (g) + ___ H_2O (g) + Heat Balance: (2,15,10,12)

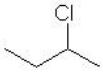
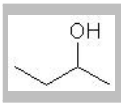
(j)  + HCl $\xrightarrow{[ZnCl_2]}$  + H_2O Rate: Very Slow

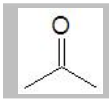
(k)  +  $\xrightarrow{[-H_2O]}$  + H_2O

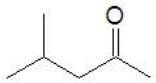
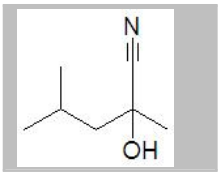
(l)  + 2 $Cu^{+2}_{(aq)}$ + NaOH $\xrightarrow{[o]}$ No Reaction

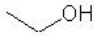
(m)  $\xrightarrow{[-H_2O]}$  +  + H_2O

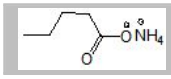
(n)  + HCl $\xrightarrow{[ZnCl_2]}$  + H_2O Rate: Slow

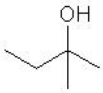
(o)  + NaOH →  + NaCl

(p)  $\xrightarrow{[o]}$  + H_2O

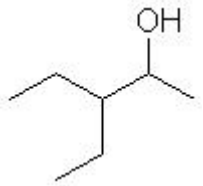
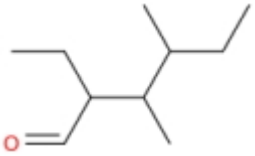
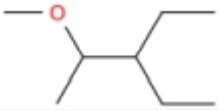
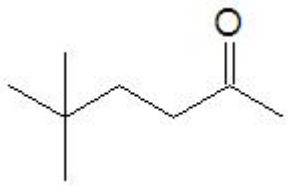
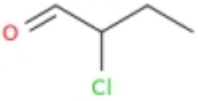
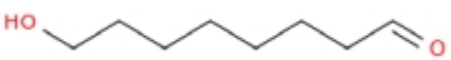
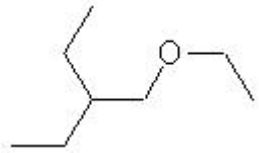
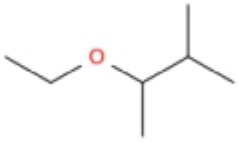
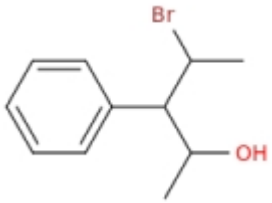
(q)  + HCN $\xrightarrow{[OH^-]}$ 

(r)  $\xrightarrow[\Delta]{[K_2Cr_2O_7/H_2SO_4]}$  + H_2O Visible Change: orange-red $\longrightarrow$ green-blue

(s)  + $2\ Ag^+_{(aq)}$ + $NH_{3(aq)}$ $\xrightarrow{[O]}$  + $2\ Ag_{(s)}$ Visible Change: clear $\longrightarrow$

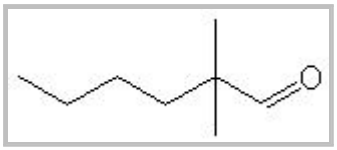
(t)  $\xrightarrow{[O]}$ No Reaction

[20 pt] 4. Give the IUPAC name of the following molecules

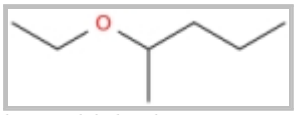
(a)  3-ethyl-2-pentanol	(b)  2-ethyl-3,4-dimethylhexanal
(c)  2-hexanol	(d)  3-ethyl-2-methoxypentane
(e)  5,5-dimethyl-2-hexanone	(f)  2-chlorobutanal
(g)  8-hydroxyoctanal	(h)  1-ethoxy-2-ethylbutane
(i)  2-ethoxy-3-methylbutane	(j)  4-bromo-3-phenyl-2-pentanol

[20 pt] 5. Draw the following organic molecules:

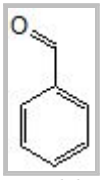
(a) 2,2-dimethylhexanal



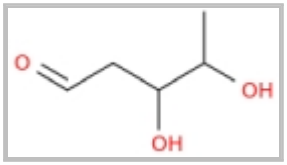
(b) 2-ethoxypentane



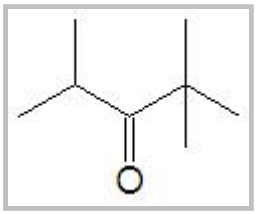
(c) benzaldehyde



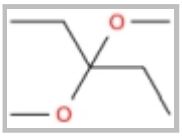
(d) 3,4-dihydroxypentanal



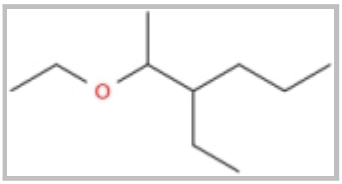
(e) 2,2,4-trimethyl-3-pentanone



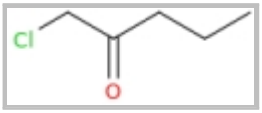
(f) 3,3-dimethoxypentane



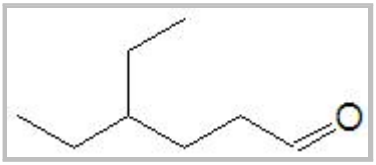
(g) 2-ethoxy-3-ethylhexane



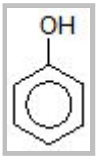
(h) 1-chloro-2-pentanone



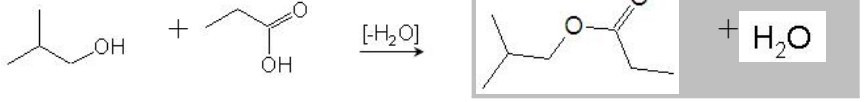
(i) 4-ethylhexanal

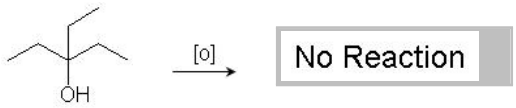


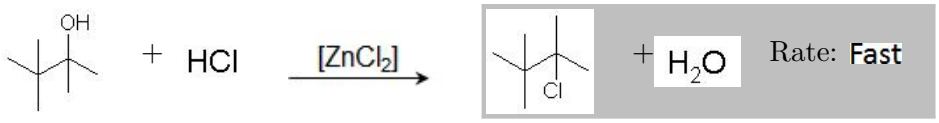
(j) phenol

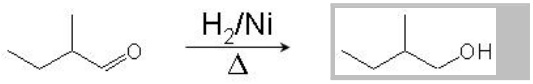


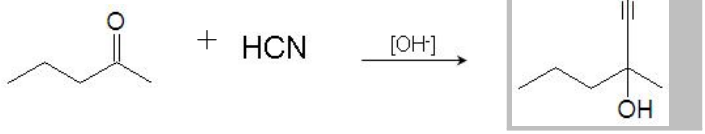
[45 pts] Complete the following reactions in the format given. If one product is favoured in a reaction, circle that product. Include states where appropriate. Be sure to balance any combustion reactions. If no reaction occurs put NR for the products.

(a) 

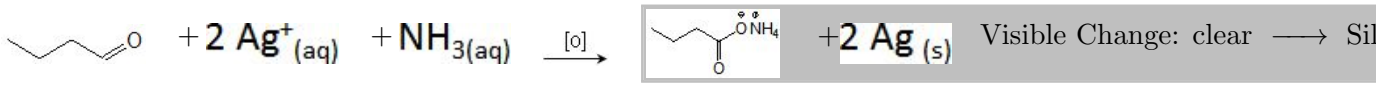
(b) 

(c) 

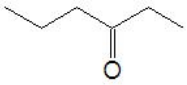
(d) 

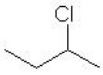
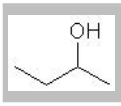
(e) 

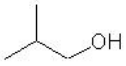
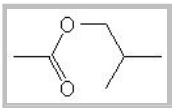
(f) 

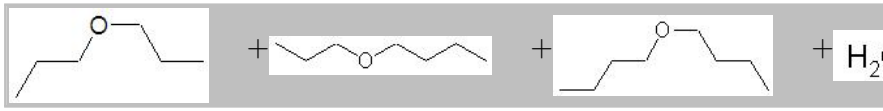
(g) 

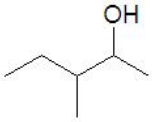
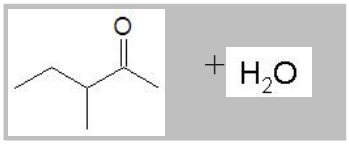
(h) 

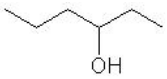
(i)  + $2\ Ag^{+}_{(aq)}$ + $NH_{3(aq)}$ $\xrightarrow{[o]}$ No Reaction

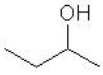
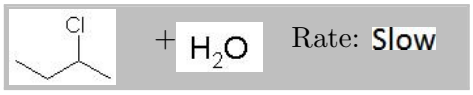
(j)  + NaOH $\longrightarrow$  + NaCl

(k)  +  $\xrightarrow{[-H_2O]}$  + H_2O

(l)  +  $\xrightarrow{[-H_2O]}$ 

(m)  $\xrightarrow{[o]}$ 

(n)  $\xrightarrow{[-H_2O]}$ 

(o)  + HCl $\xrightarrow{[ZnCl_2]}$ 

Rate: Slow

(p)  $\xrightarrow{[\text{dilute NaOH}]}$