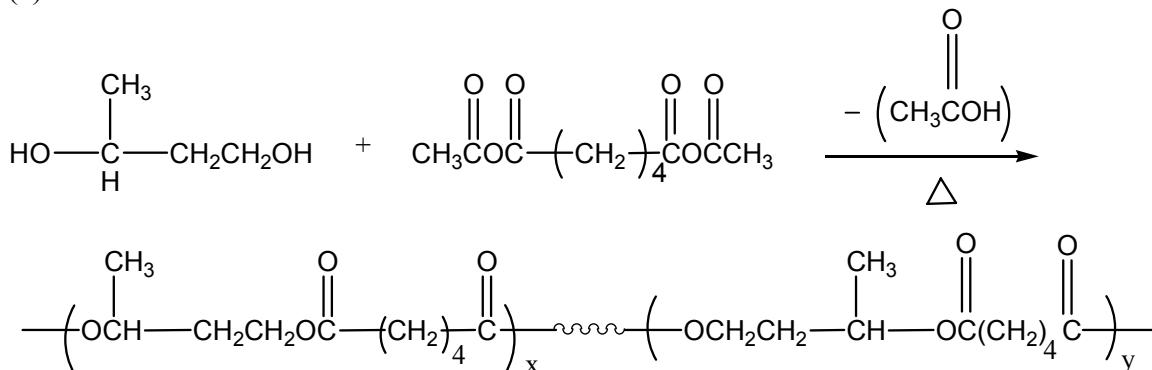


3.034 PSet#3 Solution

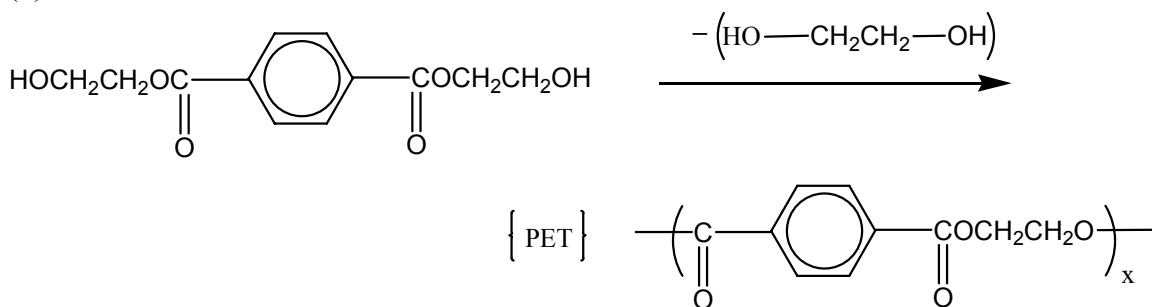
Question 1.

(a)

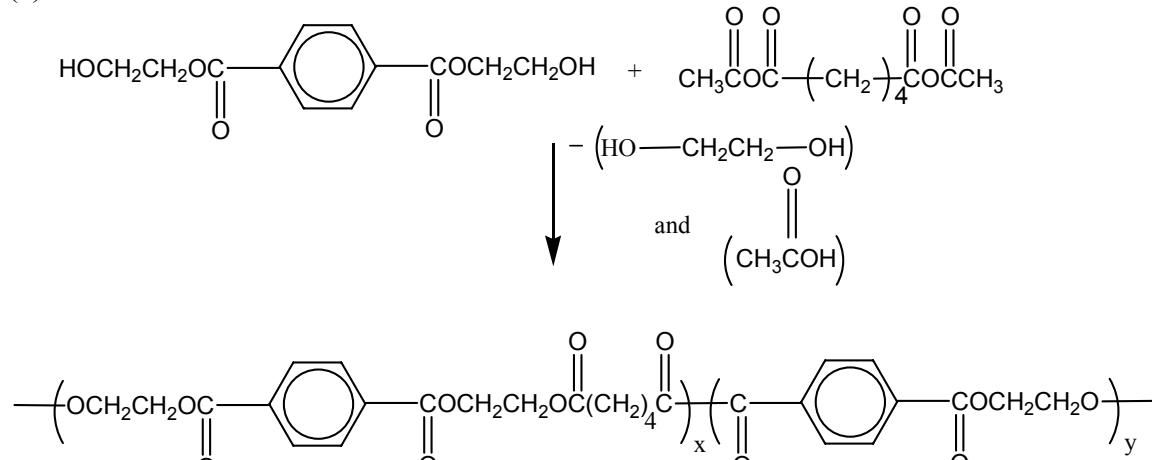


Random copolymer of head-to-head / head-to-tail positional isomers

(b)



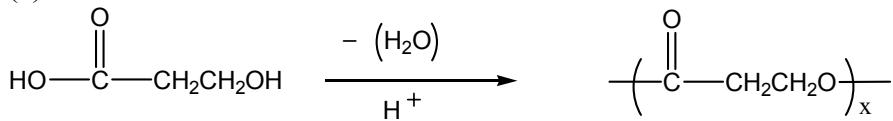
(c)



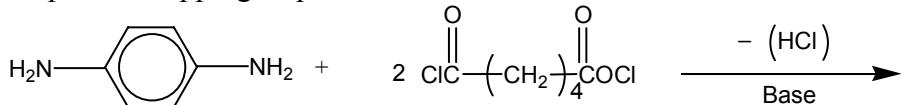
Random copolymers of both repeat units

Question 2.

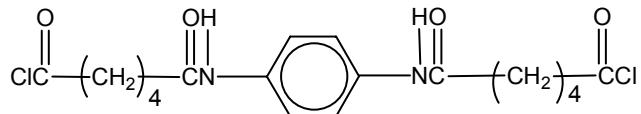
(a)



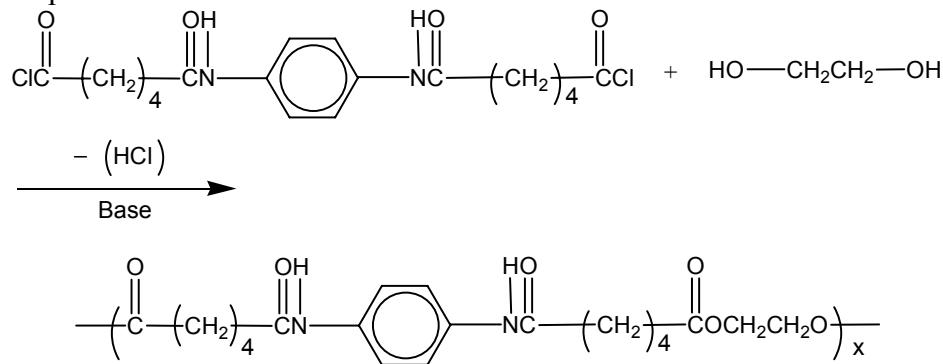
(b) Use a 2-step reaction
Step1: endcapping step



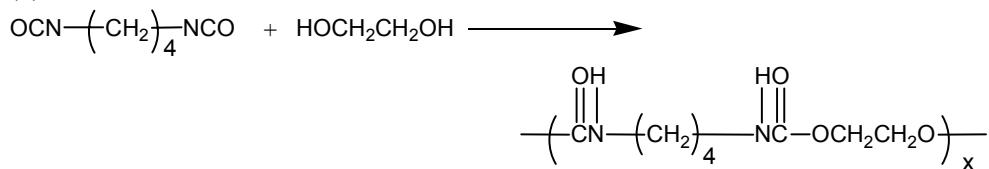
Note: must use acid chlorides with aromatic amine



Step2:

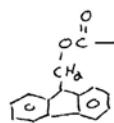


(c)



(3)

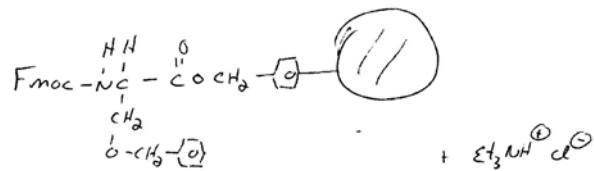
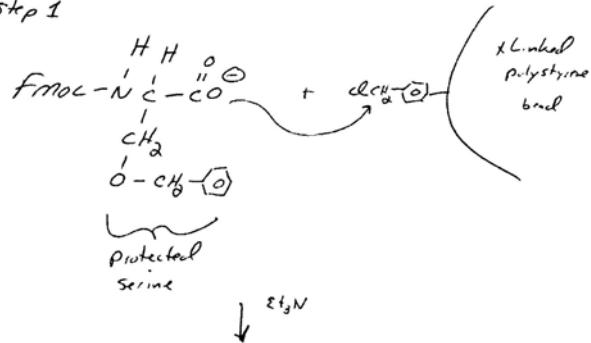
let Fmoc =



(4)

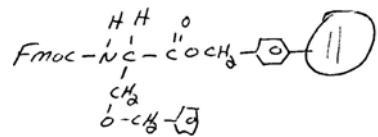
the first amino acid to be attached
to the modified polystyrene surface in
a Merrifield reactor must be protected
at the alcohol group (-CH₂OH)

step 1

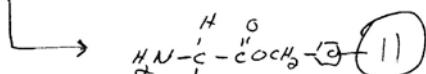
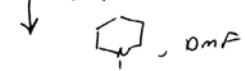


5

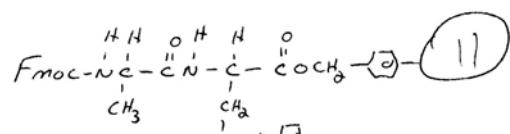
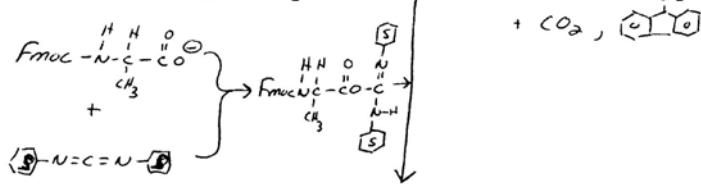
Step 2



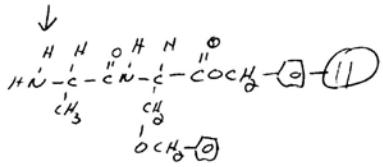
| {deprotect amine group}



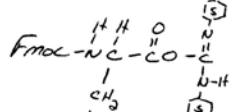
Step 3 react activated amino acid #2 with -NH₂



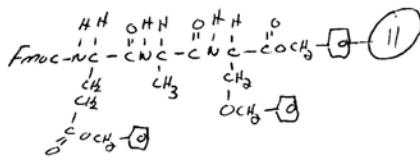
Step 4 Deprotected amine group (same as Step 2) to produce



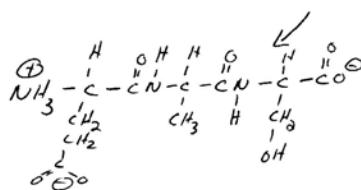
Step 5 react activated amino acid #3 with terminal -NH₂



Protected glutamic acid



acid groups of glutamic acid must be protected to avoid reaction



Step 6 use acidic conditions to release peptide from polystyrene and deprotect all groups

