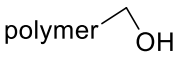
1. “Summary and key topics of the polymer synthesis course.” You are allowed (and encouraged) to answer this question at home. Your answer must fit on one A4 sheet (both sides may be used) and it must be written by hand.Text, mind maps, equations, figures etc. can be included. The idea is not to write as much as possible with a small font. Try to see the big picture.You can take the answer with you to the exam and use it to answer the three remaining questions. You must return the A4 together with the other answers.

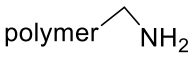
2.Explain briefly:

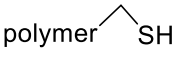
a) Initiation methods for radical polymerisation
b) Dispersity of polymer
c) activator and deactivator in ATRP
d) Different stages of emulsion polymerisation
e) Structural information gained form NMR

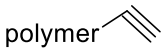
3.

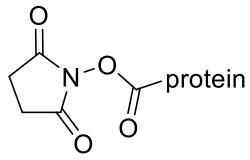
Connect correct pairs. explain your reasoning. (not 100% sure if 3rd was like drawn below).

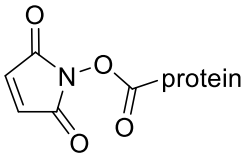
a 

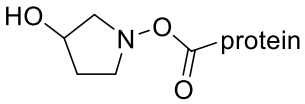
b 

c 

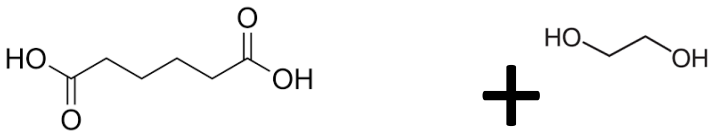
d 

1 

2 

3 

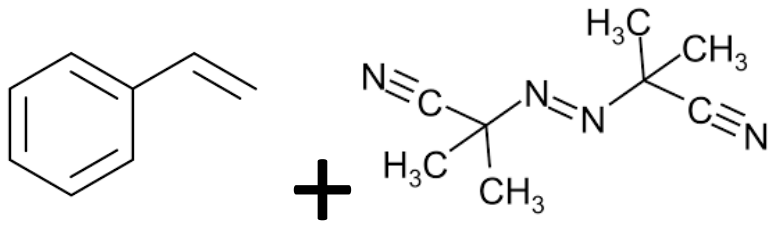
4. a)



extent=0.985 equal amounts used.

i) Write the chemical equation for this polymerization reaction.
ii) Calculate the number-average degree of polymerization, $\overline{Xn}$. Determine the number average molecular weight, $\overline{Mn}$.

4. b)



(additive)

initiator concentration =*10^-3

decom. rate = 0.85*10^-5

Initiator efficiency = 0.6

density(styrene) = 0.909

propagation rate constant = 1.8*10^-7

termination via combination

calculate steady state radical concentration and the number-average degree of polymerization, $\overline{Xn}$