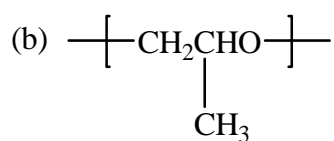
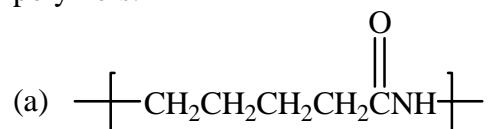


## CHEM-450

### Quiz # 3

**Q1.** Draw the structure of the monomers needed to synthesize the following polymers.

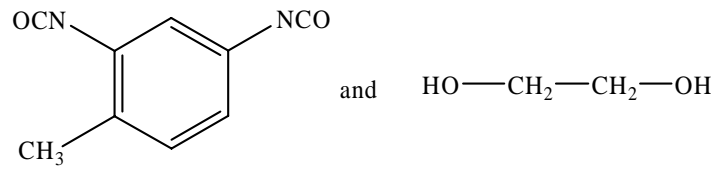


**Q2.** Considering stepwise polymerization, mark each of the following sentences as *True* or *False*

- (a) Polymer growth occurs through the reaction of a growing polymer chain with one monomer at a time.
- (b) Monomer disappears early in the reaction.
- (c) Polymer molecular weight increases steadily during the polymerization.
- (d) As the reaction time is increased, polymer yield increases but average degree of polymerization remains about the same.
- (e) Reaction mixture contains almost only unreacted monomer, polymer, and very little growing polymer chain.

**Q3.** What is the functionality of a mixture consisting of 0.5 mol glycerol, 0.3 mol ethylene glycol, and 0.2 mol ethanol?

**Q4.** Show the repeating unit that would be obtained from reaction of the following monomers.



- Q5.** How long would it take to obtain a polyester with  $\overline{DP} = 50$  if  $[A_0] = 10$  mol/L, and  $k = 10^{-3}$  L/mol.s? Assume the polyester is formed by externally catalyzed condensation of diacid and diol that are present in equimolar amounts.