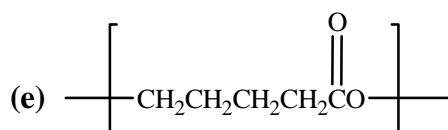
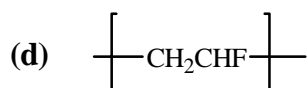
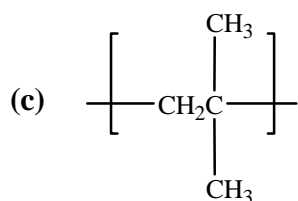
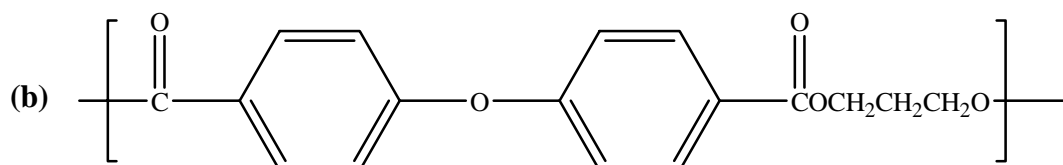
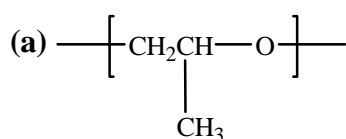


**CHEM-450**  
**Homework # 1**

**Q1.** Define the following terms in the context of polymer Chemistry. Support your answers with examples and/or sketches.

- |                             |                                 |
|-----------------------------|---------------------------------|
| (a) addition polymerization | (e) condensation polymerization |
| (b) alternating copolymer   | (f) crosslinked polymer         |
| (c) heterochain polymer     | (g) elastomer                   |
| (d) isotactic polymer       | (h) thermoplastic               |

**Q2.** Write the structure of the monomer or monomers needed to synthesize the following polymers.



**Q3.** What is the degree of polymerization ( $\overline{DP}$ ) of a sample of poly(vinyl acetate) of average molecular weight 43,000?

**Q4.** Use Small's molar attraction constants to calculate the solubility parameter,  $\delta$ , for poly(methyl methacrylate). Density of methyl methacrylate is 0.936 g/ml.