1. (30 pts) Complete the following reactions, carefully showing stereochemistry where appropriate. If mixtures of constitutional isomers or diastereomers are formed, draw all the structures. If a mixture of enantiomers is formed, draw one isomer and add the phrase "plus enantiomer".

a) \((\text{CH}_3)_2\text{CCH}=\text{CH}_2\) → HBr

b) \(\text{bicyclo}[2.2.1]hept-5-ene\) → 1. O₃ → 2. Zn, H₂O

c) \(\text{trans-cinnamic acid}\) → 1. OsO₄ → 2. NaHSO₃

d) \(\text{cyclohexyl methoxymethyl ether}\) → Br₂ → CCl₄

e) \(\text{benzilideneacetophenone}\) → Cl₂ (1 equiv.) → FeCl₃

f) \(\text{alkyne}\) → Na°, NH₃ (l)