1. An unknown compound (A) has a formula of \( \text{C}_7\text{H}_8 \). Treatment of A with \( \text{H}_2 \) on Lindlar's catalyst gives compound B (\( \text{C}_7\text{H}_{12} \)). Treatment of A with \( \text{H}_2/\text{Pd} \) on carbon (standard hydrogenation) gives compound C (\( \text{C}_7\text{H}_{16} \)). Ozonolysis of B followed by a Zn/acetic work-up gives pentanenedial and 2 equivalents of formaldehyde. 

Propose structures for A, B, and C that are consistent with these data.

2. An unknown compound (A) has a formula of \( \text{C}_8\text{H}_{12} \). Treatment of A with \( \text{H}_2/\text{Pd}-\text{carbon} \) gives B (\( \text{C}_8\text{H}_{16} \)). Treatment of A with \( \text{H}_2 \) on a Lindlar catalyst gives no reaction. Ozonolysis of A followed by workup with Zn, HOAc affords 2,4-pentanedione and propanedioal shown below.

a) How many double bonds does A have? __________

b) How many triple bonds does A have? __________

c) How many rings does A have? __________

d) Propose structures for both A and B that are consistent with these data.