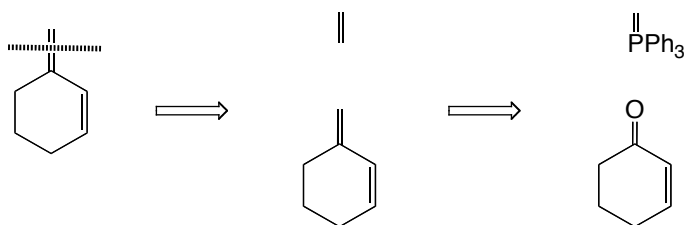


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17-12 What needs to be accomplished here is the cleavage of both a C-C σ and C=C π bond. We know to this point only one reaction that accomplishes both: ozonolysis. Once that is done, we then must reduce the resulting ketones.

17-18 We have learned that, all else being the same, ketones are more stable than are aldehydes, and formaldehyde is the least stable. So the order given in the answer in the book is logical on this basis except for the 3,3-dimethyl-2-butanone. There, steric interactions in the HCN adduct decrease its stability.

17-19 To find the starting materials for the synthesis of an alkene by a Wittig reaction, erase the middle of the π bond and then add an "O" to one side and a PPh_3 to the other:



It is generally best to have the phosphorous ylide on the less substituted carbon.