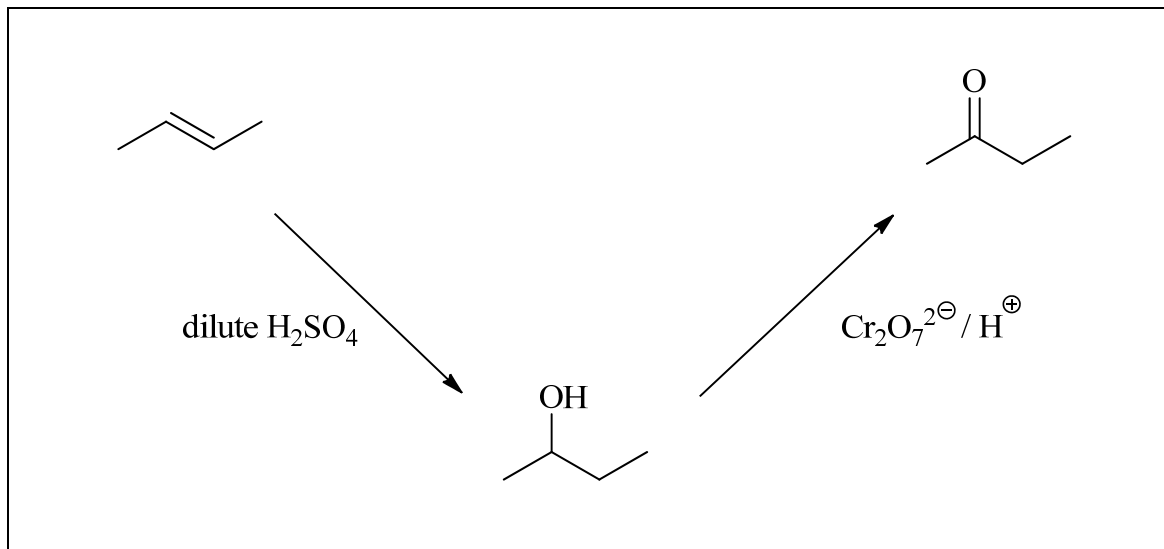


Marks
8

- Show clearly the reagents you would use to carry out the following chemical conversion. Two steps are required. Give the structure of the intermediate compound.



How can IR spectroscopy distinguish between the starting material, the intermediate and the product?

The product absorbs strongly in the 1650-1800 cm⁻¹ region.

The intermediate alcohol absorbs strongly in the 3000-3300 cm⁻¹ region.

The starting material does not absorb strongly in either of these regions.

How can ¹³C NMR spectroscopy distinguish between the starting material and the product?

The starting material is symmetrical and has only 2 resonances whilst the product has 4 resonances.