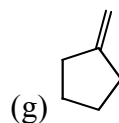
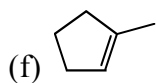
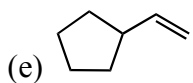
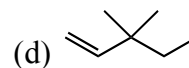
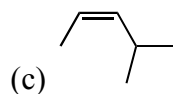
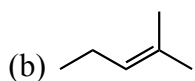
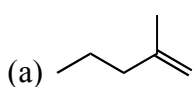


Chem. 218 Problem Set 3

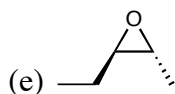
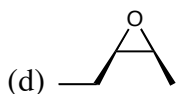
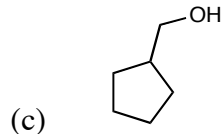
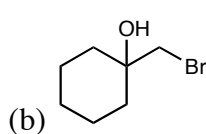
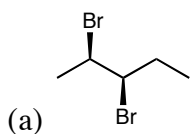
Recommended Problems: 10.21-10.24, 10.26, 10.28-10.33, 10.46-47 (e, f, h, i), 10.48-10.49, 10.50 (c, d, e, f, h), 10.52 (a, b), 10.53 (c, d, f), 10.62-10.64, 10.66, 12.16, 12.37 (d, e, j, k), 12.39 (b, e, f), 12.55, 12.66

(1st ed: 10.20-10.24, 10.26, 10.28-10.32, 10.44-45 (e, f, h, i), 10.46-10.47, 10.48 (c, d, e, f, h), 10.50, 10.51 (c, d, f), 10.60-10.62, 10.64, 12.15, 12.35 (d, e, j, k), 12.37 (b, e, f), 12.51, 12.60)

1. Draw the products of reaction of the following compounds with (a) Br_2 (b) Br_2 , MeOH (c) 9-BBN; NaOH, H_2O_2 (d) *m*-CPBA. Show relevant stereochemistry where appropriate. Make sure you can draw the mechanism for each type of transformation.

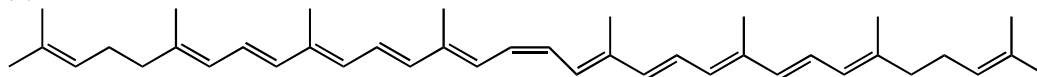


2. Give an alkene precursor and the reagents necessary to form the following compounds:



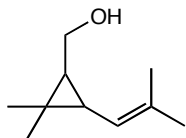
3. Circle the five-carbon isoprene units in each of the following terpenes:

(a)



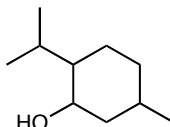
lycopene (responsible for the red color in tomatoes, watermelon, grapefruit, guava, papaya, red bell peppers)

(b)



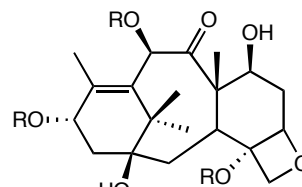
chrysanthemyl alcohol

(c)



menthol

(d)



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4. Suggest a mechanism for the formation of the following terpenes from *cis* or *trans* farnesyl pyrophosphate. Keep in mind that biological systems can catalyze reactions not normally available to us in the laboratory. For example, 1° cations may be stabilized by an enzyme and unusual cation shifts may occur.

