1. (6 points) Name the following compounds according to IUPAC standard nomenclature.





Name\_\_\_\_2-cyclopentyl-2-ethyl-1-hexanol\_\_\_ Name\_\_\_\_trans-5-heptene-3, 4-diol\_\_

1. (3 points) Draw the following structures: 3-phenylpentan-3-ol



1. (2 points) The compound 3-phenylpentan-3-ol is classified as a \_\_tertiary\_\_ alcohol.
2. (5 points) Rank the following molecules in order of increasing solubility in water (from least soluble to most soluble), and **briefly** explain your answer.



Least soluble C D B A Most soluble

Explain: Solubility deals with the idea of like dissolves like. A and C are more like water due to the polarity of the 2 alcohol groups and its ability to hydrogen bond. Letter A is more soluble than C because it contains less nonpolar material (hydrocarbon chain). As the polarity decreases (in this case less hydrogen bonding, as in letter D) on the molecule so does solubility until all you have is London dispersion forces which makes the molecule completely non soluble in water which is the case of letter C

1. (8 points) Complete the following reactions. If no reaction occurs, write “No Reaction”.



 



