1. Determine the appropriate IUPAC name for the following compounds from its lineangle structures. ( 8 points)



## Solution:


heptane-2,5-diol

3. Predict the major product(s) with the correct stereochemistry for the following reactions. ( 9 points)




$\xrightarrow[\text { 2. } \mathrm{H}_{3} \mathrm{O}^{+}]{\text {ether }}$

Solution:


cyclopentanone

1-methylcyclopentan-1-ol



1. $2 \mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{MgBr}$
$\xrightarrow[\text { 2. } \mathrm{H}_{3} \mathrm{O}^{+}]{\text {ether }}$
butyryl chloride


3-ethylhexan-3-ol

