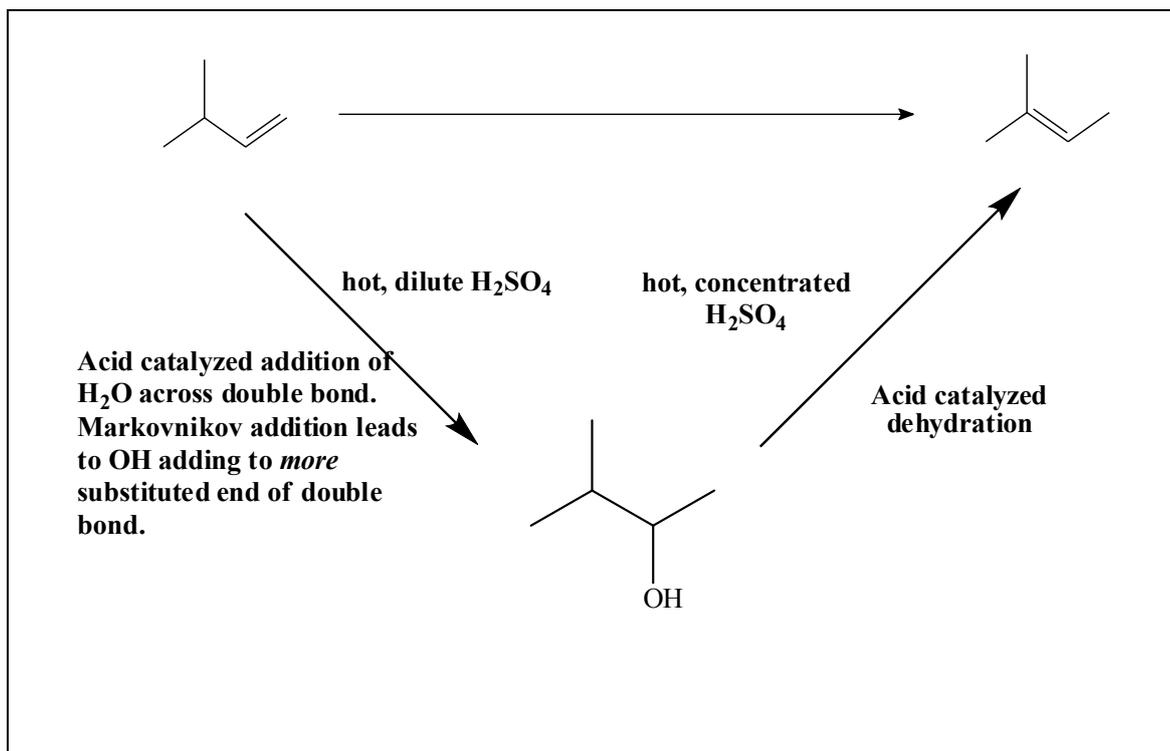


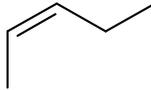
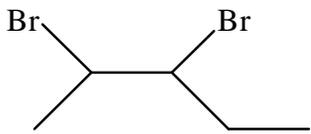
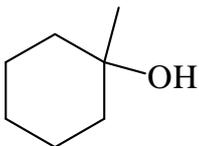
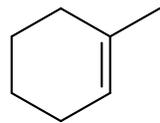
Marks  
3

- Show clearly the reagents you would use to carry out the following chemical conversion. Draw constitutional formulas for any intermediate compounds.  
NOTE: more than one step may be necessary.

**THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY**

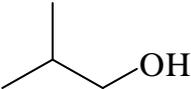
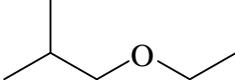
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**3**

- Complete the following table. Make sure you complete the name of the starting material where indicated.

STARTING MATERIAL NAME (where required)	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
 <b>Name: (Z)-2-pentene</b>	$\text{Br}_2$ ( $\text{CCl}_4$ solvent)	
	<b>conc. <math>\text{H}_2\text{SO}_4</math> / heat</b>	

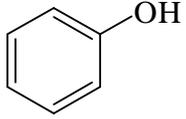
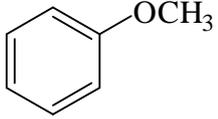
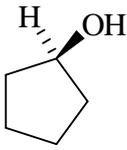
**Marks**  
**3**

- Complete the following table. Make sure you complete the name of the starting material or major product where indicated.

STARTING MATERIAL	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
$\text{CH}_3\text{CH}=\text{CHCH}_3$	<b>dilute <math>\text{H}_2\text{SO}_4</math> / heat</b>	$\begin{array}{c} \text{CH}_3\text{CH}_2\text{CHCH}_3 \\   \\ \text{OH} \end{array}$ <b>Name: 2-butanol</b>
	1. Na metal 2. $\text{CH}_3\text{CH}_2\text{Br}$	

**Marks**  
**3**

- Complete the following table. Make sure you complete the name of the starting material where indicated.

STARTING MATERIAL	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
	<b>1. NaOH</b> <b>2. CH<sub>3</sub>I</b>	
	$\text{Cr}_2\text{O}_7^{2-} / \text{H}^+$	