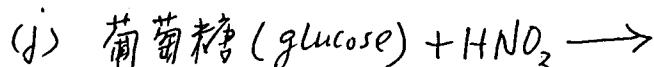
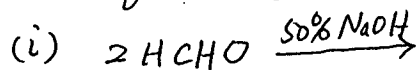
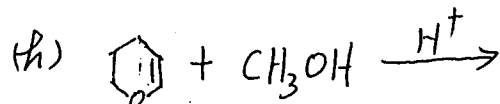
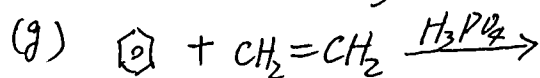
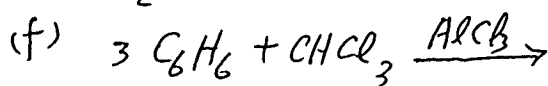
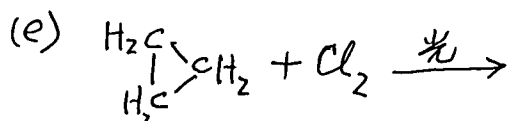
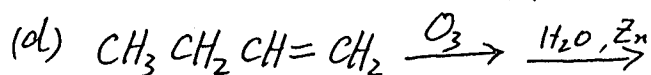
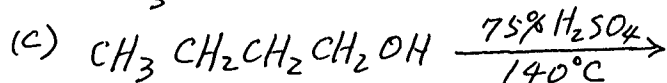
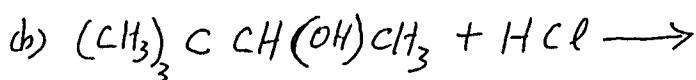
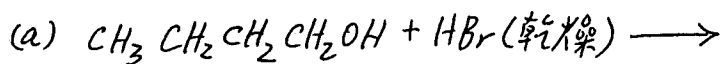
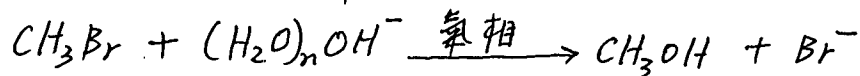


20% 1. 完成下列各反應式並寫出主要產物之構造式。

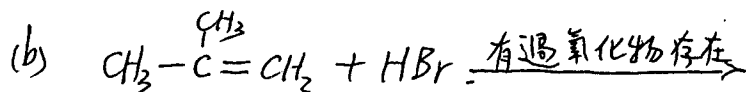
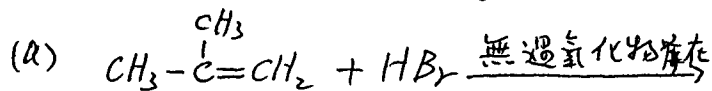


6% 2. 試說明溶劑對 $\text{S}_{\text{N}}2$ (nucleophilic substitution) 反應之影響，並解釋下面之實驗事實。

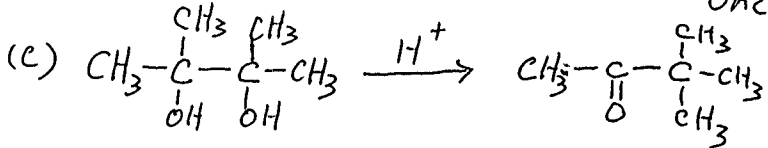
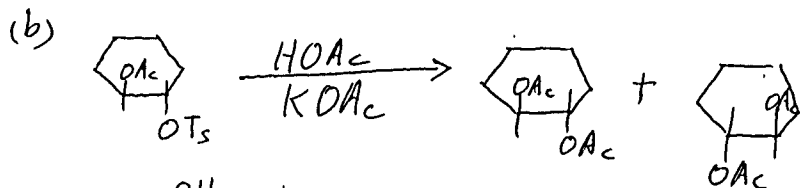
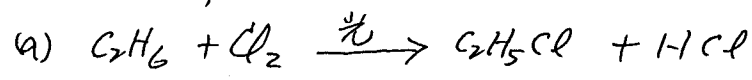


$n = 0, 1, 2, 3$, 在溶液中
相對速率常數 $k = 1, 0.6, 0.002, 0.0002, 10^{-16}$

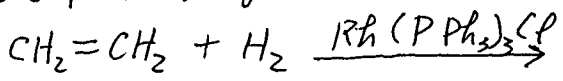
6% 3. 試寫出下列兩個反應式之產物構造式，並分別寫出其反應之反應機構。



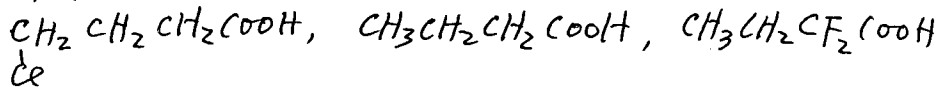
18% 4. 寫出下列各反應式之反應機構。



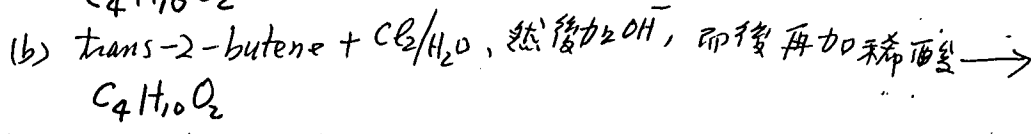
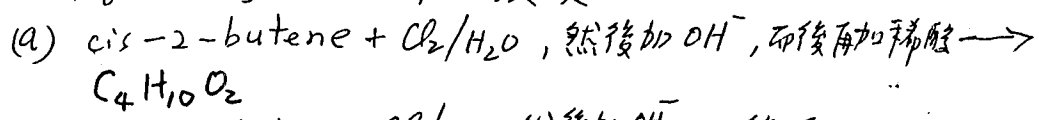
10% 5. Wilkinson 觸媒, 即 $Rh(PPh_3)_3Cl$, 用於氫化反應, 請寫出下列氫化反應機構及各反應步驟中觸媒結構式之變化 (即 Rh 的 ligand 之結構)。



10% 6. 為何有機酸 $RCOOH$ 酸性比其他有機物大, 請說明之, 並依酸性大小排列下列各有機酸, 請你解釋你排出此大小順序的道理。



18% 7. 分別寫出下列二個反應式, 反應過程之構造式 (包括 Configuration) 並說明其最後產物之旋光性。



12% 8. 寫出以苯為原料及使用其他無機, 有機物, 合成下列化合物

