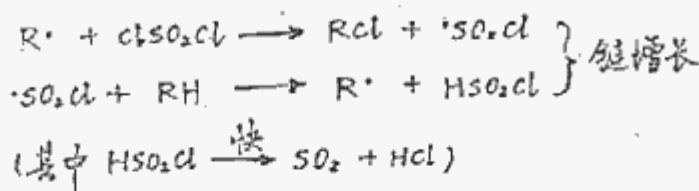
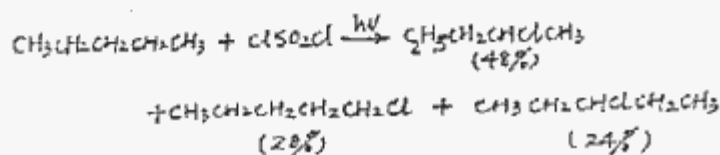
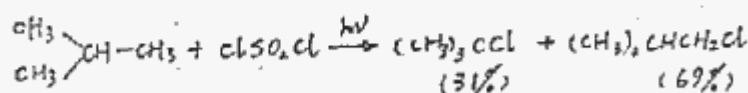
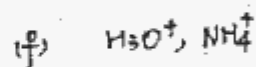
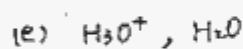
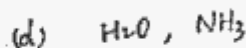
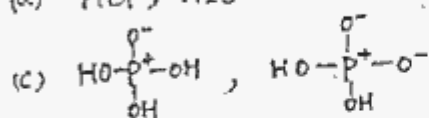
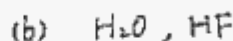


1999 年上海交通大学有机化学试题

考研加油站收集整理 <http://www.kaoyan.com>

1999 年上海交通大学有机化学试题

1. 烷烃自由基卤代反应可采用磺酰氯 (SO_2Cl_2) 通过下述链增长过程进行:

从下述反应的产物组成计算 $\cdot\text{SO}_2\text{Cl}$ 自由基对烷烃伯、仲、叔氢的反应活性之比: (本题 5%)

2. 从下列各组化合物中选出 pK_a 较大的化合物: (7%)

3. 计算下列各化合物的 $[\alpha]_D$ 值: (2×3%)

(a) 0.13 M 的 Strychnine (马钱子碱, 分子量 334.4) 乙醇溶液在 10cm

長的盛液管中測得旋光度為 -2.26° ;

(b) 3.2g 蔗糖 (分子量 342.3) 的 15 ml 水溶液裝在 5 cm 長的盛液管中測得的旋光度為 $+7.1^\circ$.

4. 根據下列分子式和 NMR 數據, 推斷出各個化合物的結構式 (4 × 2%)

(a) $C_4H_7Cl_3$; δ , 1.4 (s, 3H); 4.0 (s, 4H)

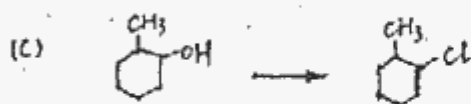
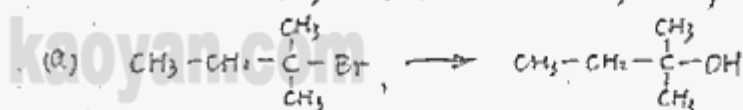
(b) $C_4H_7Cl_3$; δ , 1.3 (d, 3H); 2.4 (s, 2H); 4.6 (q, 1H)

(c) $C_4H_8Br_2$; δ , 1.0 (d, 3H); 2.5 (m, 1H); 3.3 (d, 4H)

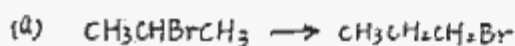
(d) $C_4H_7Br_3$; δ , 1.4 (d, 3H); 2.6 (t, 2H); 3.6 (m, 1H); 5.4 (t, 1H)

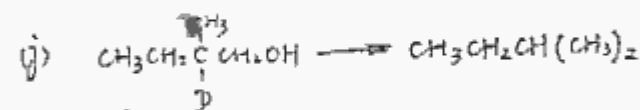
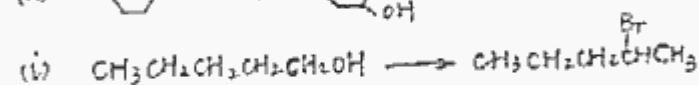
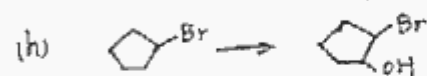
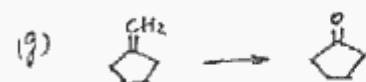
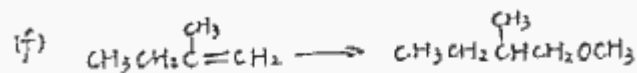
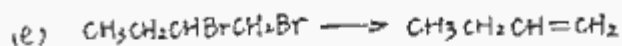
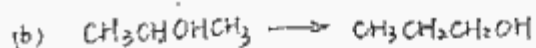
(s, d, t, q 和 m 分別表示單, 雙, 三, 四和多重峰)

5. 寫出完成下列反應所需的試劑和反應條件: (4 × 1.5%)

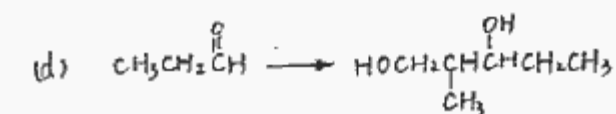
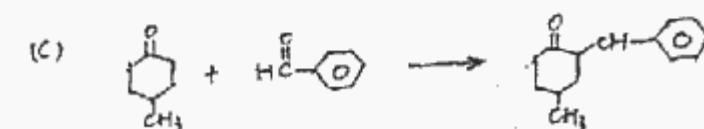
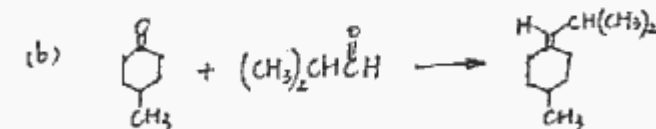


6. 完成下列轉變: (可能不止一步) (10 × 1.5%)

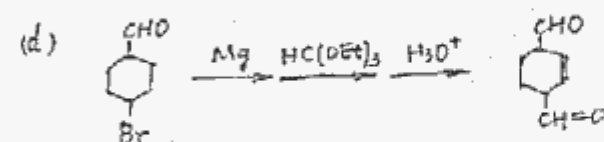
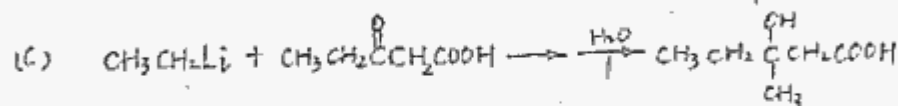
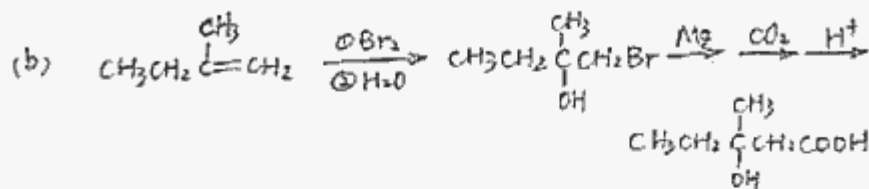
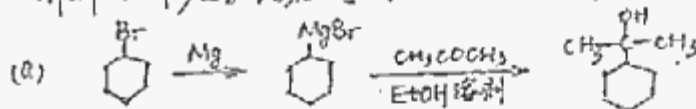




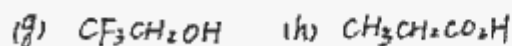
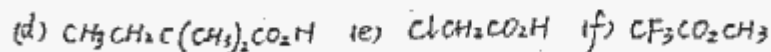
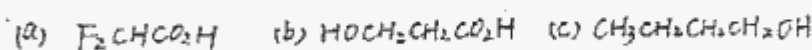
7. 完成下列转变: (4 × 2.5%)



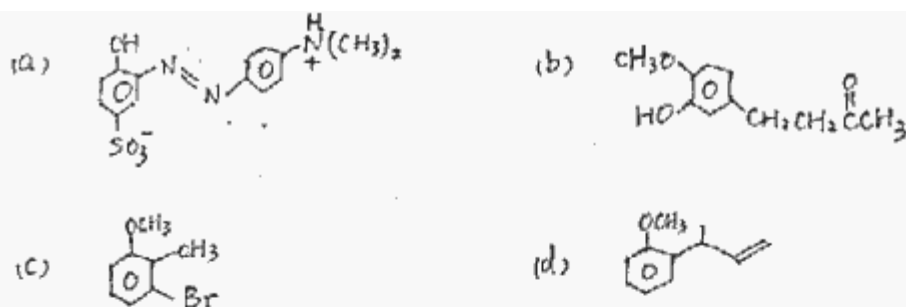
8. 解释下列步骤错在何处? (4×2%)



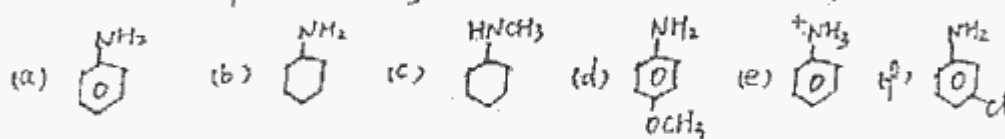
9. 按酸性逐渐增大的次序排列下列化合物 (8×1%)



10. 合成下述化合物, 可采用单取代苯衍生物和非芳香族化合物为原料. (4×2.5%)



11. 按碱性逐渐增大的次序排列下列化合物 (6×1%)



12. 写出下列反应产物, 如果不止一个, 请注明何者为主要产物. (6×1.5%)

