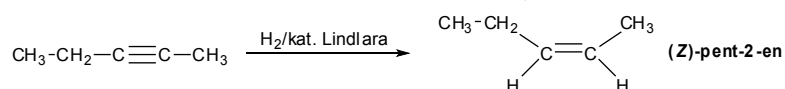
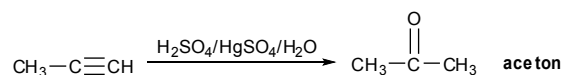
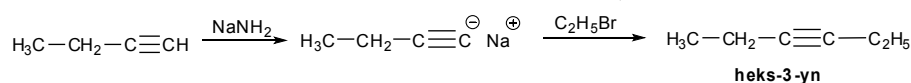
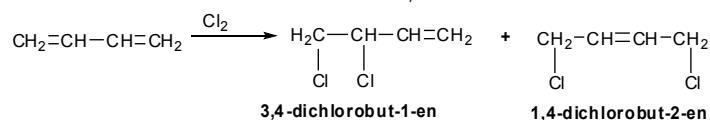
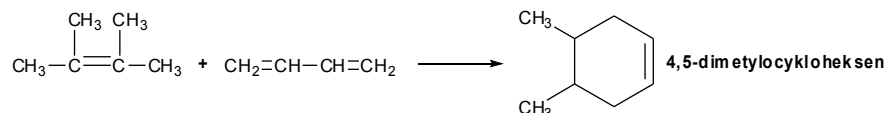
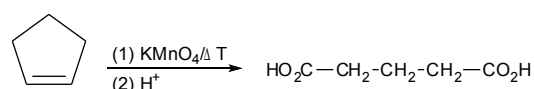
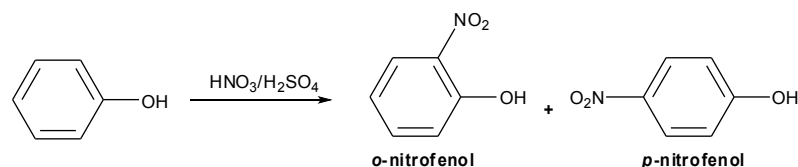
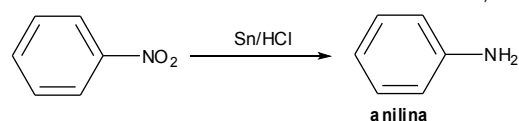
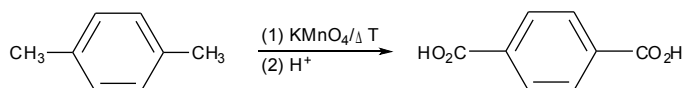
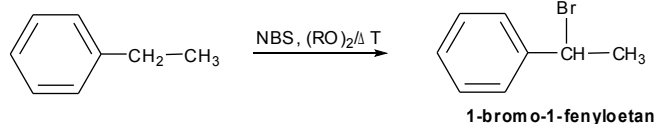
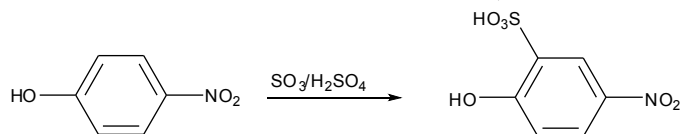
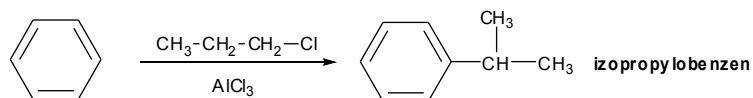
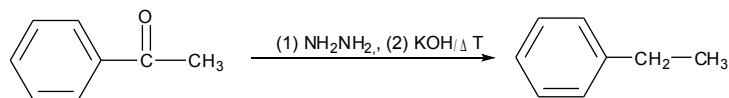
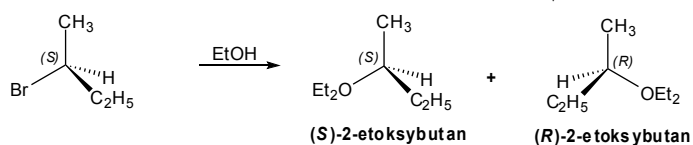
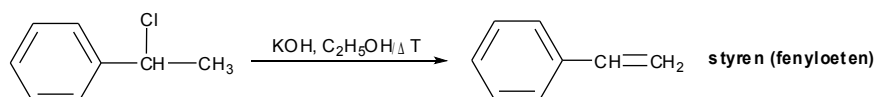
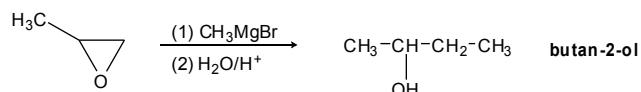
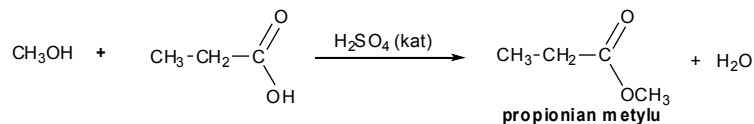
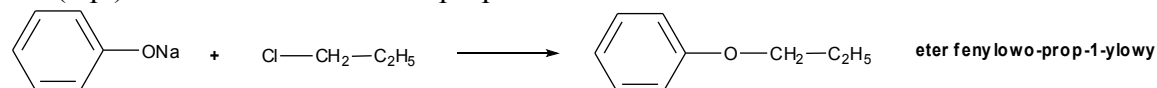
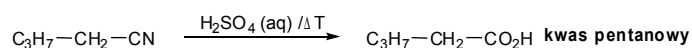
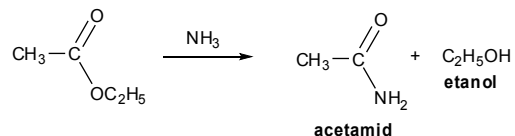
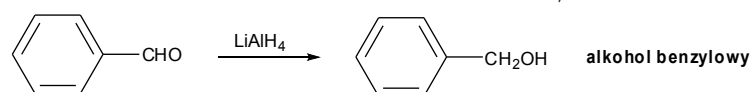
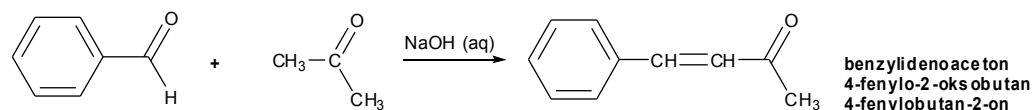
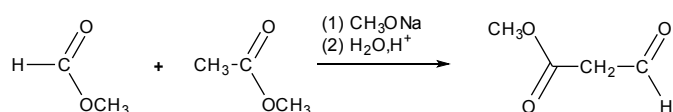


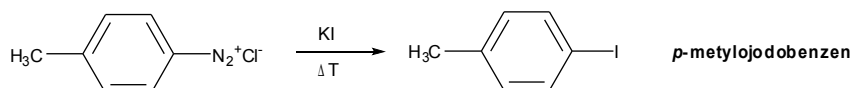
Egzamin z Chemii Organicznej 2008/2009, Wydział Inżynierii Chemicznej i Procesowej

4. (4 p.) pent-2-yn $\xrightarrow{\text{H}_2/\text{kat. Lindlara}}$ **A**5. (2 p.) propyn $\xrightarrow{\text{H}_2\text{SO}_4/\text{HgSO}_4/\text{H}_2\text{O}}$ **A**6. (3 p.) but-1-yn $\xrightarrow{\text{NaNH}_2}$ **A** $\xrightarrow{\text{C}_2\text{H}_5\text{Br}}$ **B**7. (4 p.) buta-1,3-dien $\xrightarrow{\text{Cl}_2}$ **A + B**8. (3 p.) 2,3-dimetylobut-2-en + buta-1,3-dien $\xrightarrow{\Delta T, \Delta p}$ **A**9. (2 p.) cyklopenten $\xrightarrow{(1) \text{KMnO}_4/\Delta T, (2) \text{H}^+}$ **A**10. (4 p.) fenol $\xrightarrow{\text{HNO}_3/\text{H}_2\text{SO}_4}$ **A + B**11. (2 p.) nitrobenzen $\xrightarrow{\text{Sn/HCl(st.)}}$ **A**

12. (1 p.) 1,4-dimetylobenzen $\xrightarrow{(1) \text{KMnO}_4, \Delta T, (2) \text{H}_2\text{O}/\text{H}^+}$ A13. (3 p.) etylobenzen $\xrightarrow{\text{NBS}, (\text{RO})_2, \Delta T}$ A14. (3 p.) *p*-nitrofenol $\xrightarrow{\text{SO}_3/\text{H}_2\text{SO}_4}$ A15. (3 p.) benzen + 1-chloropropan $\xrightarrow{\text{AlCl}_3}$ A16. (1 p.) keton fenylowo-metylowy $\xrightarrow{(1) \text{NH}_2\text{NH}_2, (2) \text{KOH}, \Delta T}$ A17. (6 p.) (*S*)-2-bromobutan $\xrightarrow{\text{C}_2\text{H}_5\text{OH}}$ A + B18. (2 p.) 1-chloro-1-fenyletan $\xrightarrow{\text{KOH}/\text{C}_2\text{H}_5\text{OH}, \Delta T}$ A

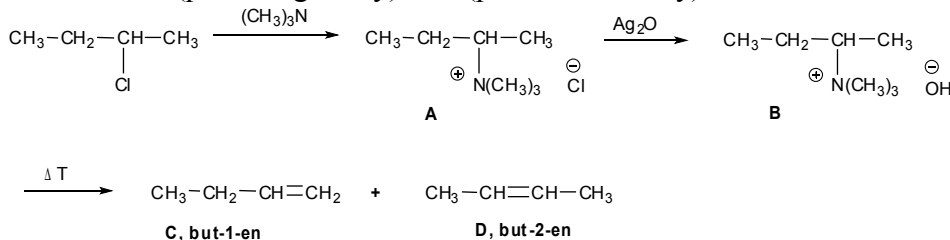
19. (4 p.) 1,2-epoksypropan $\xrightarrow{(1) \text{ bromek metylomagnezu}, (2) \text{ H}_2\text{O}/\text{H}^+}$ **A**20. (2 p.) metanol + kwas propionowy $\xrightarrow{\text{kat. H}_2\text{SO}_4(\text{st.})}$ **A + B**21. (2 p.) fenolan sodu + 1-chloropropan \longrightarrow **A**22. (2 p.) nityl kwasu pentanowego $\xrightarrow{\text{H}_2\text{SO}_4(\text{aq})/\Delta \text{ T}}$ **A**23. (2 p.) octan etylu + amoniak \longrightarrow **A + B**24. (2 p.) aldehyd benzoesowy $\xrightarrow{\text{LiAlH}_4}$ **A**25. (4 p.) aldehyd benzoesowy + aceton $\xrightarrow{\text{NaOH}(\text{aq})}$ **A**26. (3 p.) mrówczan metylu + octan metylu $\xrightarrow{(1) \text{ CH}_3\text{ONa}, (2) \text{ H}_2\text{O}/\text{H}^+}$ **A**

27. (2 p.) chlorek *p*-metylobenzenodiazoniowy $\xrightarrow[\Delta T]{KI}$ **A**



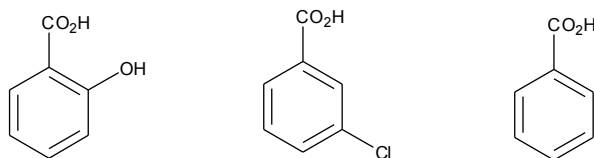
28. (6 p.) 2-chlorobutan + trimetyloamina $\xrightarrow{\quad}$ **A** $\xrightarrow[Ag_2O]{\quad}$ **B** $\xrightarrow[\Delta T]{\quad}$

$\xrightarrow{\quad}$ **C** (produkt główny) + **D** (produkt uboczny)



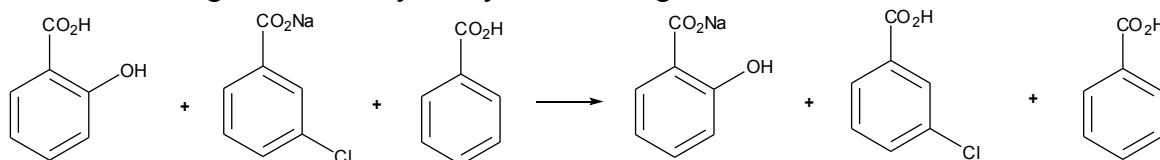
Zad. 3. (7 p.) Wykonaj następujące polecenia:

1. uszereguj podane kwasy w kolejności od najmocniejszego do najslabszego:
 (a) kwas *m*-chlorobenzoesowy ($pK_a = 3.8$); (b) kwas *o*-hydroksybenzoesowy ($pK_a = 2.98$),
 (c) kwas benzoesowy ($pK_a = 4.2$);



wzrost kwasowości

2. za pomocą wzorów chemicznych przedstaw schemat reakcji zachodzącej podczas działania wodnym roztworem *m*-chlorobenzoesanu sodu na mieszaninę kwasu benzoesowego i kwasu *o*-hydroksybenzoesowego.



Zadanie	Liczba punktów
1	
2	
3	
Suma	
Prace domowe	
Suma	