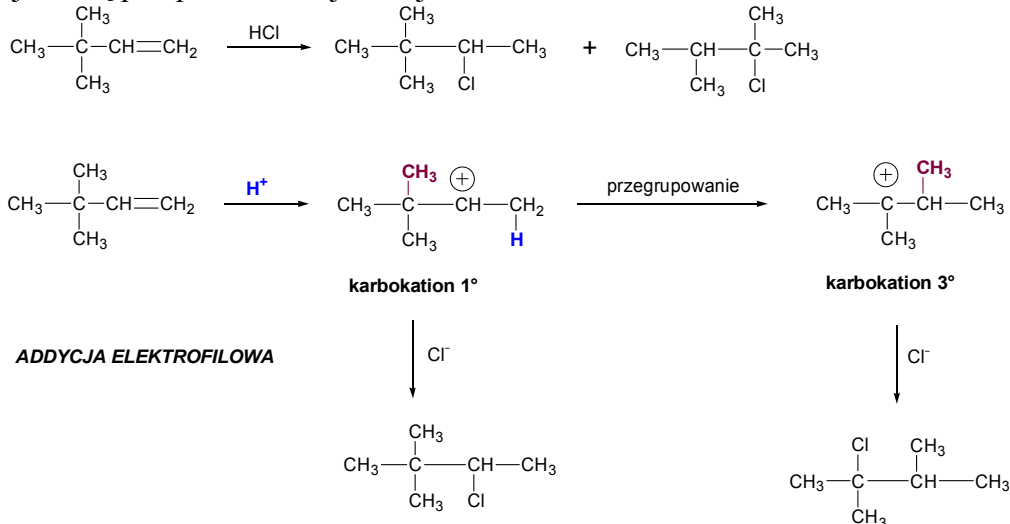


Egzamin z Chemii Organicznej 2008/2009, Wydział Inżynierii Chemicznej i Procesowej

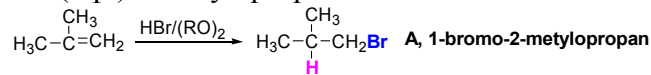
Zad. 1. (10 p.) Działając chlorowodem na 3,3-dimetylobut-1-en otrzymuje się mieszaninę 3-chloro-2,2-dimetylobutanu i 2-chloro-2,3-dimetylobutanu. Wykonaj następujące polecenia:

- przedstaw schemat reakcji za pomocą wzorów chemicznych;
- zaproponuj jej prawdopodobny mechanizm;
- podaj nazwę przeprowadzonej reakcji.

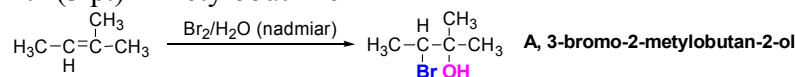


Zad. 2. Przedstaw podane poniżej przekształcenia za pomocą wzorów chemicznych oraz podaj nazwy produktów organicznych oznaczonych pogrubionymi literami oraz, w odpowiednich podpunktach, podaj nazwę reakcji:

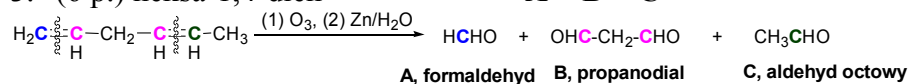
1. (3 p.) 2-metylopropen $\xrightarrow{\text{HBr}/(\text{RO})_2}$ **A**



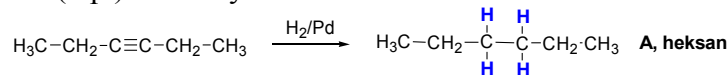
2. (3 p.) 2-metylobut-2-en $\xrightarrow{\text{Br}_2/\text{H}_2\text{O} \text{ (nadmiar)}}$ **A**



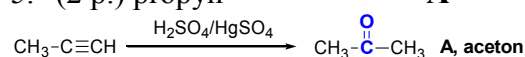
3. (6 p.) heksa-1,4-dien $\xrightarrow{(1) \text{O}_3, (2) \text{Zn}/\text{H}_2\text{O}}$ **A + B + C**



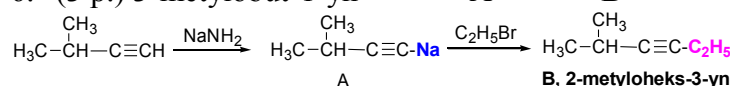
4. (4 p.) heks-3-yn $\xrightarrow{\text{H}_2/\text{Pd}}$ **A**



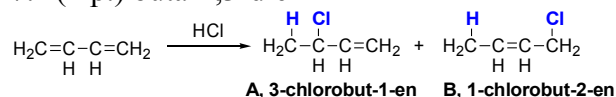
5. (2 p.) propyn $\xrightarrow{\text{H}_2\text{SO}_4/\text{HgSO}_4}$ **A**

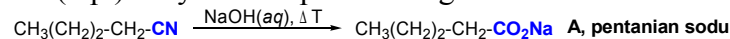
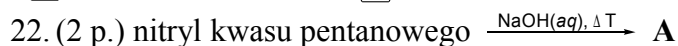
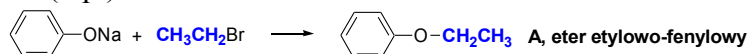
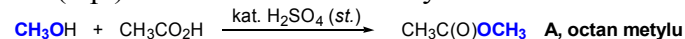
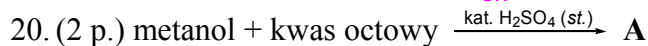
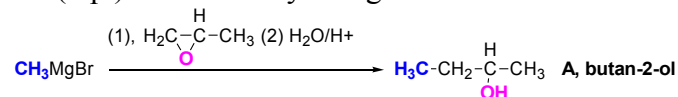
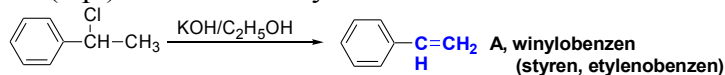
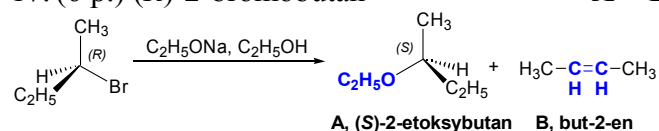
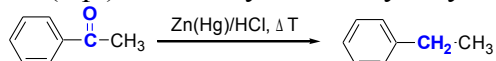
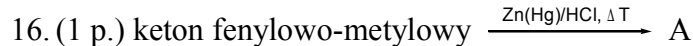
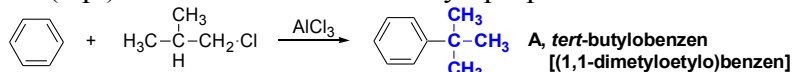
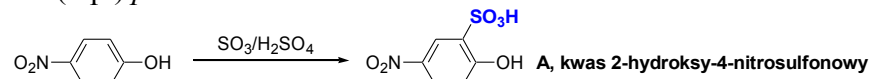
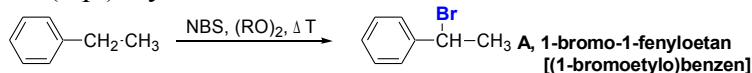
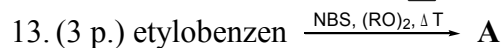
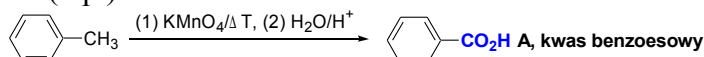
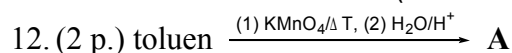
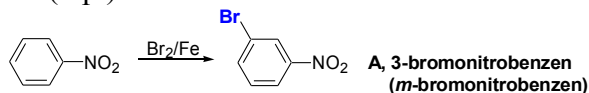
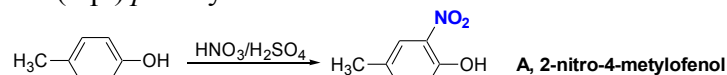
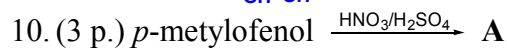
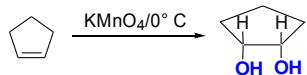
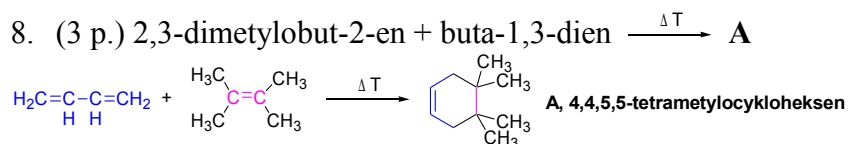


6. (3 p.) 3-metylobut-1-yn $\xrightarrow{\text{NaNH}_2}$ **A** $\xrightarrow{\text{C}_2\text{H}_5\text{Br}}$ **B**

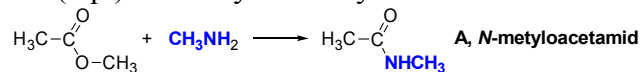


7. (4 p.) buta-1,3-dien $\xrightarrow{\text{HCl}}$ **A + B**

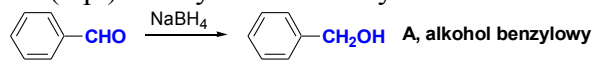




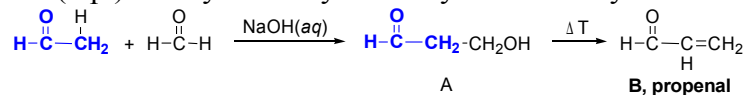
23. (2 p.) octan etylu + metyloamina \rightarrow A



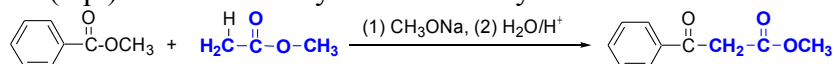
24. (2 p.) aldehyd benzoesowy $\xrightarrow{\text{NaBH}_4}$ A



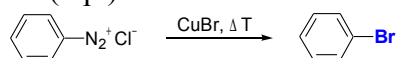
25. (4 p.) aldehyd octowy + aldehyd mrówkowy $\xrightarrow{\text{NaOH(aq)}}$ A $\xrightarrow{\Delta T}$ B



26. (3 p.) benzoesan metylu + octan metylu $\xrightarrow{(1) \text{CH}_3\text{ONa}, (2) \text{H}_2\text{O}/\text{H}^+}$ A

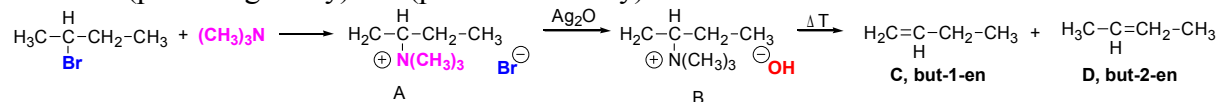


27. (1 p.) chlorek benzenodiazoniowy $\xrightarrow{\text{CuBr}, \Delta T}$ A



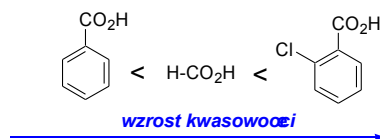
28. (6 p.) 2-bromobutan + trimetyloamina \rightarrow A $\xrightarrow{\text{Ag}_2\text{O}}$ B $\xrightarrow{\Delta T}$

\rightarrow C (produkt główny) + D (produkt uboczny)



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

- uszureguj podane kwasy w miarę wzrastającej kwasowości: (a) kwas benzoesowy ($\text{pK}_a = 4.2$), (b) kwas *o*-chlorobenzoesowy ($\text{pK}_a = 2.9$), (c) kwas mrówkowy ($\text{pK}_a = 3.8$);



- za pomocą wzorów chemicznych przedstaw schemat reakcji zachodzącej podczas działania wodnym roztworem mrówczanu sodu na mieszaninę kwasu benzoesowego i kwasu *o*-chlorobenzoesowego.

