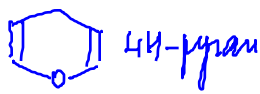
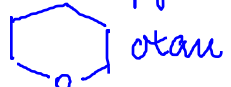
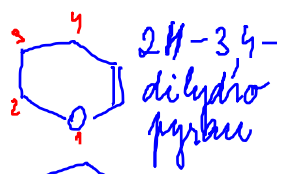


Heterocyklické sloučeniny

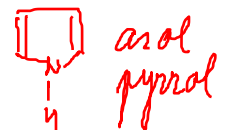
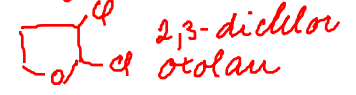
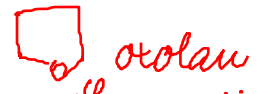
pefiny:
 O kyslík
 S křída
 Se selen
 B bor
 N azot
 P fosfor

	Bez dusíku		S dusíkem		
3	nenasyt.	nasyčená	nenasyt.	nasyčená	
3	-iren	-iran	-irin	-iridin	
4	-et	-etan	-et	-etidin (+etin)	
5	-ol	-olan	-ol	-olidin	
6	-in	-an	-in	perhydro -in	
7	-epin	-epan	-epin	perhydro -epin	
8	-ocin	-ocan	-ocin	perhydro -ocin	
9	-onin	-onan	-onin	perhydro -onin	
10	-ecin	-ecan	-ecin	perhydro -ecin	

OSN



aziridi 2-azirin



Heterocyklické sloučeniny



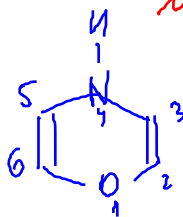
1,3-oxazol
oxazol



1,2-oxazol
isoxazol



1,3-diazin
pyrimidin



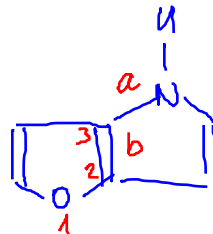
1,4-oxazin
dihydro-morpholin



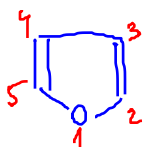
morpholin
2,3,5,6-tetrahydro-
1,4-oxazin



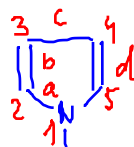
furo[2,3-b]pyrrol



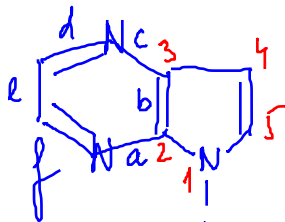
furo[3,2-b]pyrrol



furan



pyrrol



1,4-diazin
pyrazin

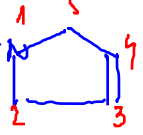


pyrrol

pyrrolo[2,3-b]pyrazin

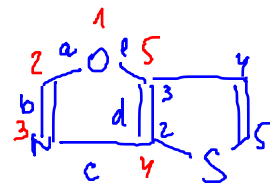


pyrazol



pyrrol

6H-pyrrolo[1,2-b]pyrazol

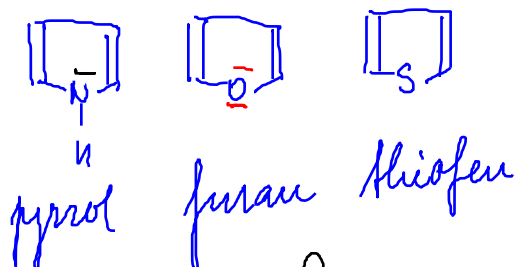


oxazol

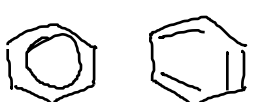
thiofen

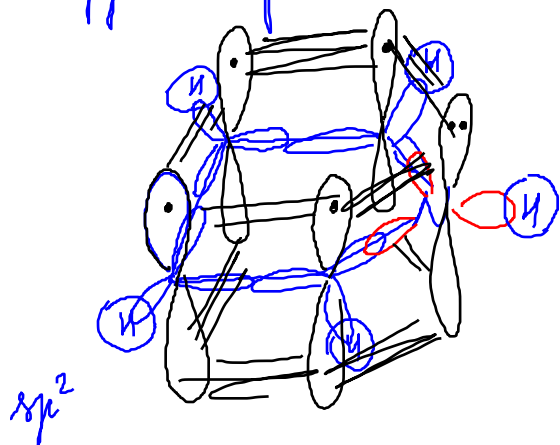
thieno[2,3-d]oxazol

Heterocyklické sloučeniny



Hückel pravidlo
 konjugovaný π -el. systém
 cyklická sloučenina

delokalizační energie

 150 kJ/mol

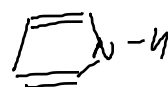


6 π -elektronů

DE kJ/mol



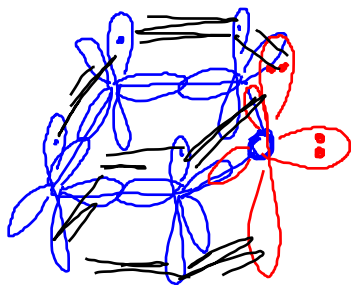
80



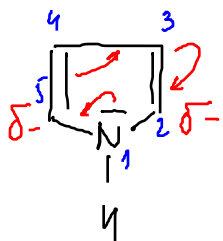
95



117

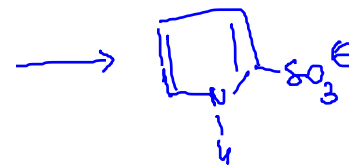
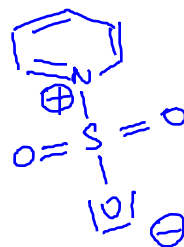
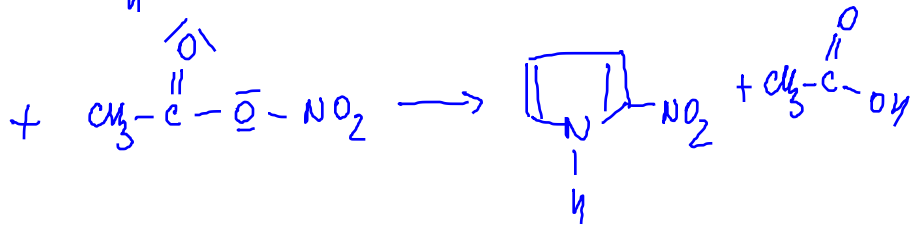
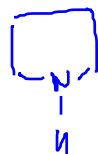
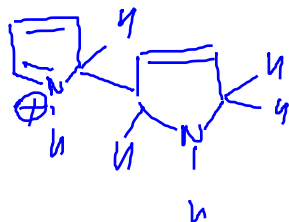
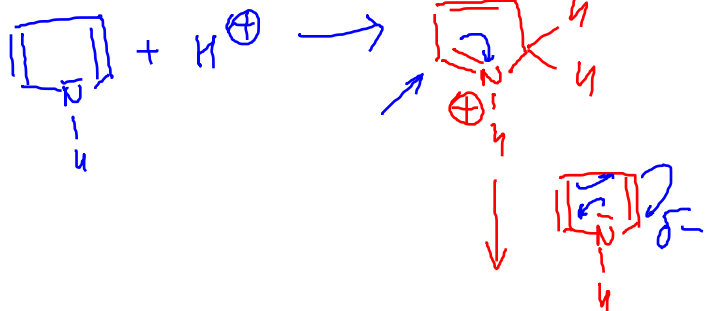
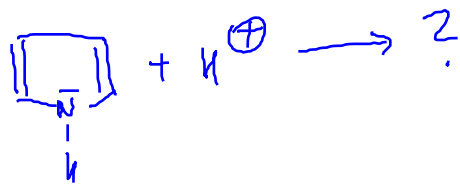


Heterocyklické sloučeniny

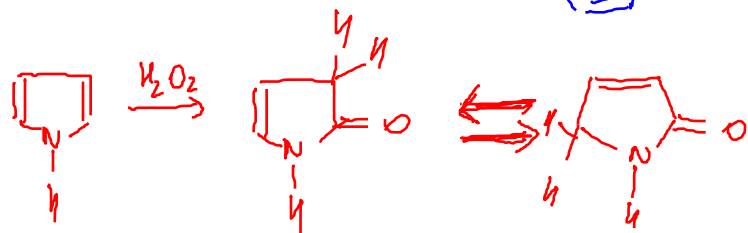
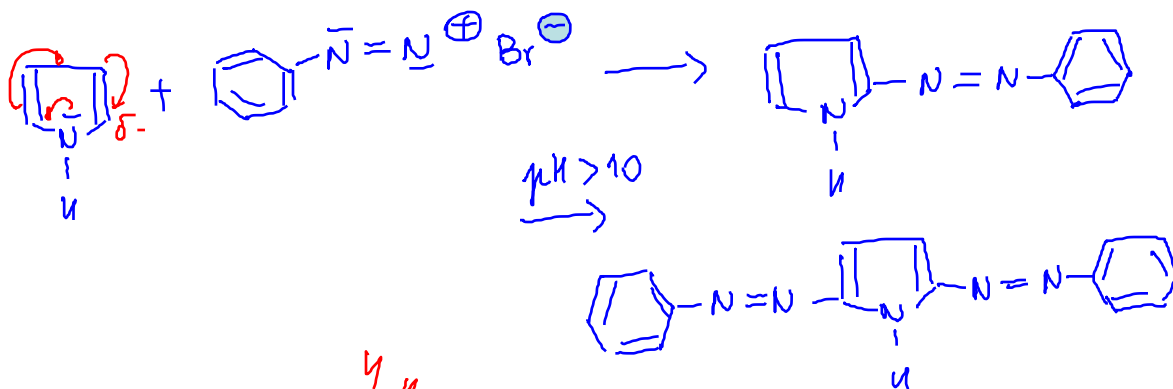


2,5 - α -polohy
3,4 - β -polohy

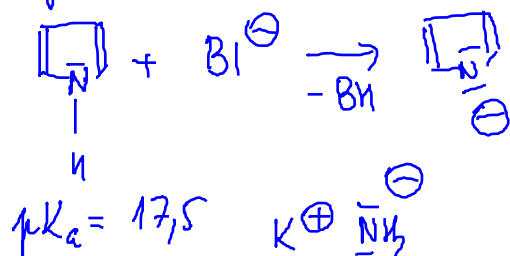
$$pK_b = 17,8$$



Heterocyklické sloučeniny

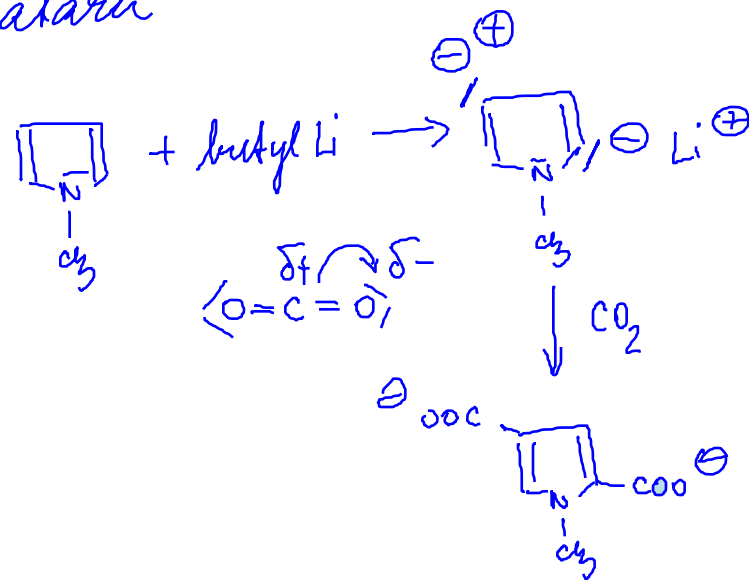


pyrrol odoly' více nukleofilním atakou



$\text{p}K_a = 17,5$

$\text{K}^+ \text{NH}_2^-$
 Grignard. reagent
 Butyllithium
 NaH



Heterocyklické sloučeniny

