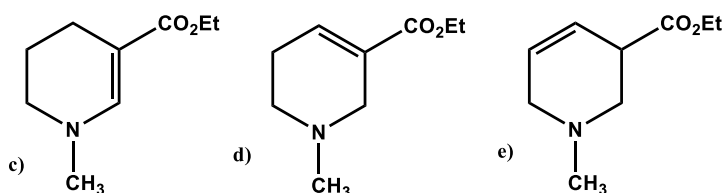
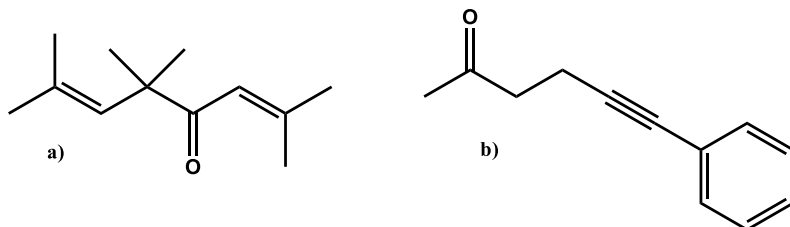


QFL0341 - Estrutura e Propriedades de Compostos Orgânicos Noturno (2019)
5ª Lista de exercícios

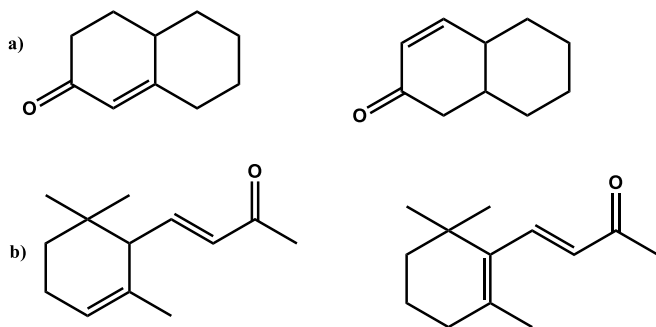
1) Qual alceno mais estável em cada par? Justifique.

- a) 2-metil-2-penteno ou 2,3-dimetil-2-buteno
- b) cis-3-hexeno ou trans-3-hexeno
- c) trans-2-hexeno ou 2-metil-2-penteno.

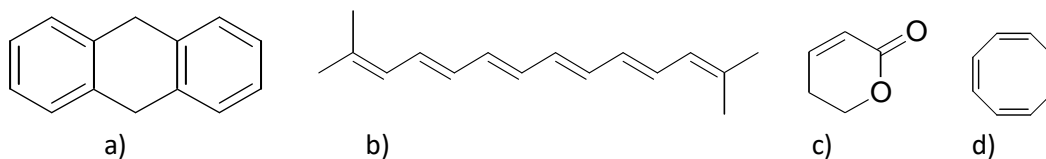
2) Represente estruturas de ressonância para os compostos abaixo.



3) Preveja e explique como a espectroscopia no UV-VIS pode ser utilizada para distinguir os seguintes pares de compostos. Reforce suas respostas com cálculos. Utilize as tabelas fornecidas ao final da Lista.

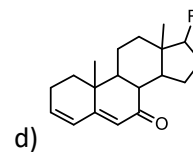
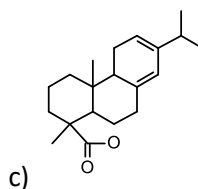
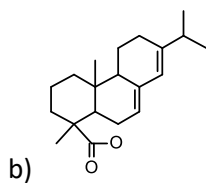


4) Quais dos compostos abaixo deve apresentar absorção na região visível do espectro eletromagnético?



5) Calcule os máximos de absorção para os compostos abaixo. Utilize as tabelas fornecidas a seguir.

a) 2,4-dimetil-1,3-pentadieno

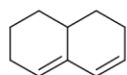


Regras de Woodward-Fieser para dienos

acyclic butadiene = 217 nm



Heteroannular (transoid):



base $\lambda_{\max} = 214$
 $\epsilon = 5,000 - 15,000$

Homoannular (cisoid):

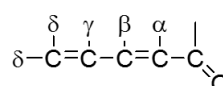
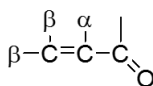


base $\lambda_{\max} = 253$
 $\epsilon = 12,000 - 28,000$

The incremental contribution of substituents:

Group	Increment
Extended conjugation	+30
Each exo-cyclic C=C	+5
Alkyl	+5
-OCOCH ₃	+0
-OR	+6
-SR	+30
-Cl, -Br	+5
-NR ₂	+60

Regras de Woodward-Fieser para enonas



Group		Increment
6-membered ring or acyclic enone		Base 215 nm
5-membered ring parent enone		Base 202 nm
Acyclic dienone		Base 245 nm
Double bond extending conjugation		30
Alkyl group or ring residue	α, β, γ and higher	10, 12, 18
-OH	α, β, γ and higher	35, 30, 18
-OR	$\alpha, \beta, \gamma, \delta$	35, 30, 17, 31
-O(C=O)R	α, β, δ	6
-Cl	α, β	15, 12
-Br	α, β	25, 30
-NR ₂	β	95
Exocyclic double bond		5
Homocyclic diene component		39

Referência:

Pavia, D., Lampman, G. M., Kriz, G. S. and Vyvyan, J. R. (2016) Introdução à Espectroscopia. Cengage Learning. Cap. 10. Espectroscopia no ultravioleta, páginas 559 – 594.