

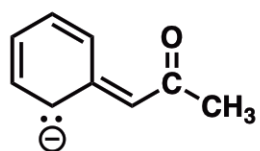
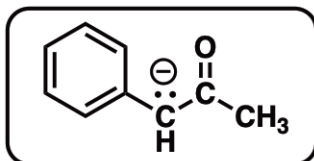
Resonance Exam Preparation Pack

Section A: Identifying Proper Resonance Forms

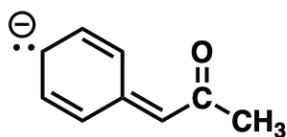
Link to answer

<http://bit.ly/Res-MOC-1>

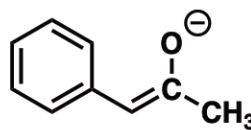
A-1 Which of these molecules is NOT a resonance form of



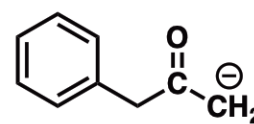
A



B

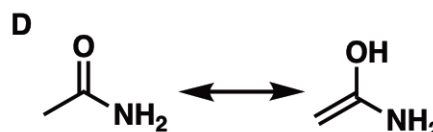
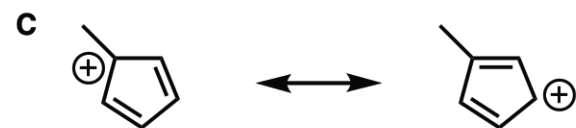
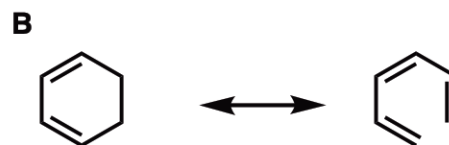
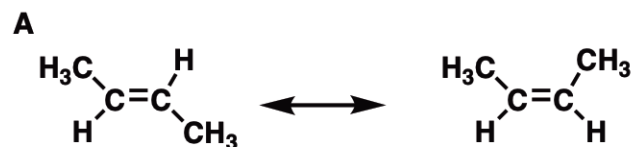


C

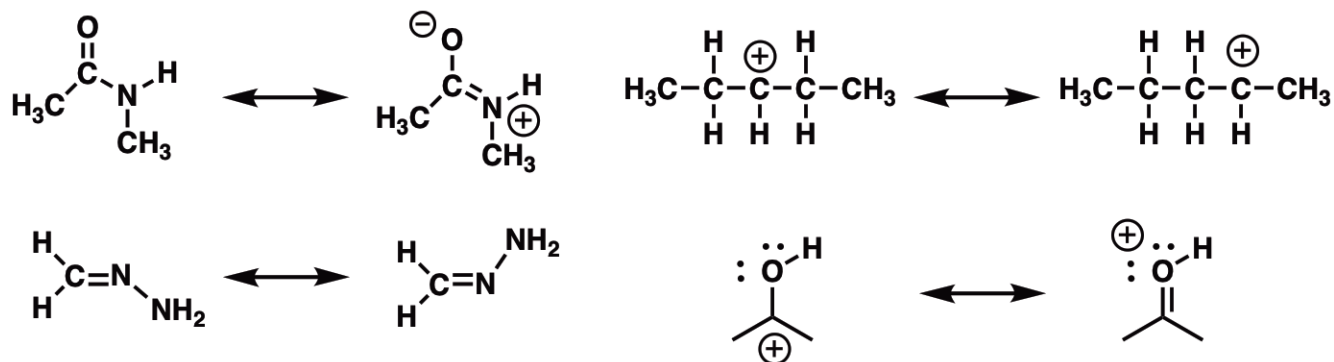


D

A-2 Which of these represents a pair of resonance forms? <http://bit.ly/Res-MOC-2>



A-3 Which of these represents a pair of resonance forms?

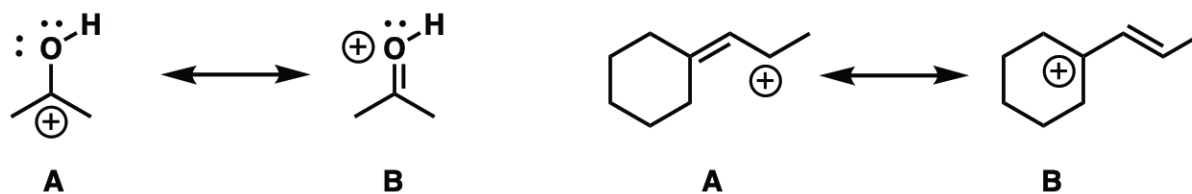


<http://bit.ly/Res-MOC-3>

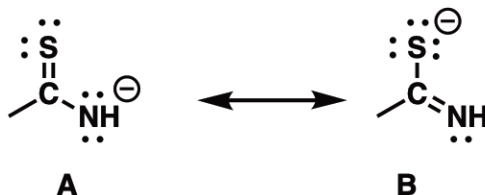


Section B: Identifying Important Resonance Forms

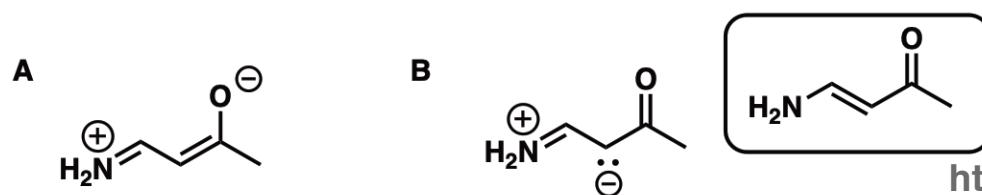
B-1 Which resonance form is more important?



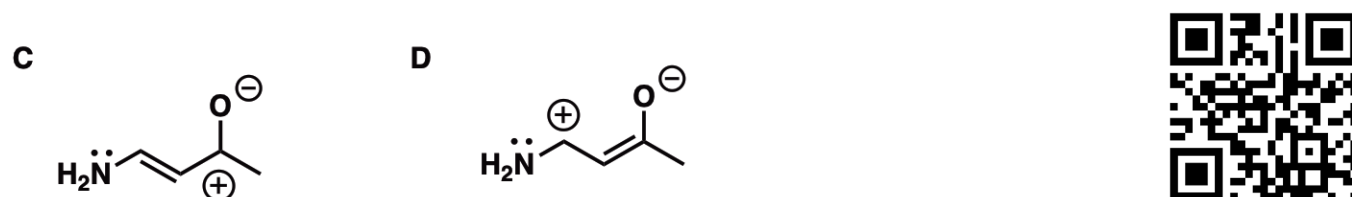
<http://bit.ly/Res-MOC-4>



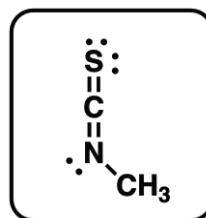
B-2 Which resonance form contributes the most to the resonance hybrid of



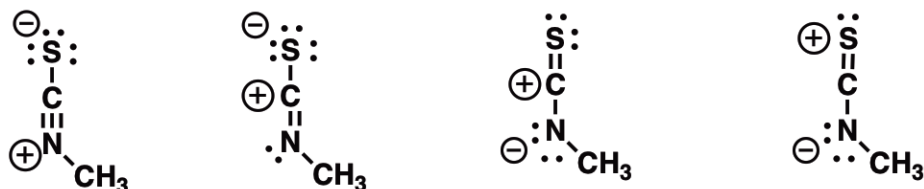
<http://bit.ly/Res-MOC-5>



B-3 Which resonance form contributes the most to the resonance hybrid of



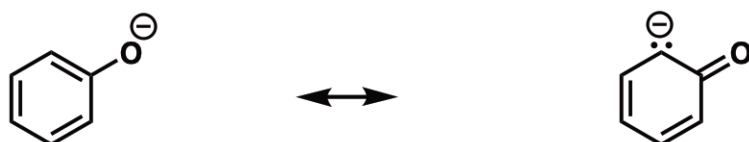
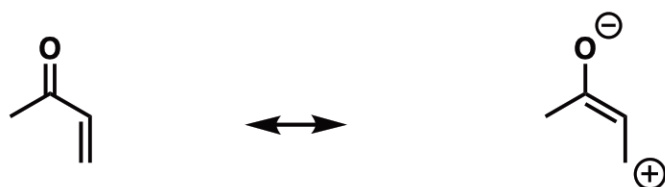
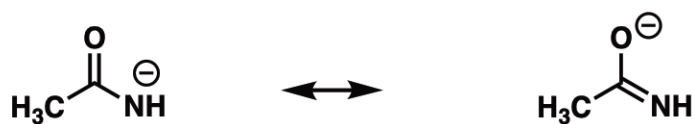
<http://bit.ly/Res-MOC-6>



Section C: Drawing Curved Arrows

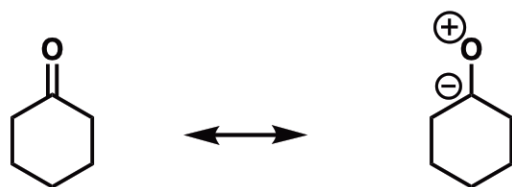
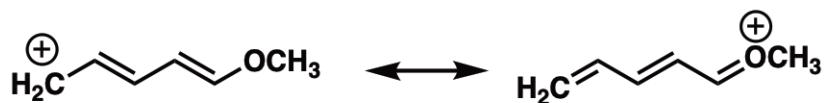
C-1 Draw in the curved arrows to convert left-hand resonance forms to the right-hand resonance form.

<http://bit.ly/Res-MOC-7>



C-2 Draw in the curved arrows to convert the left-hand structures to the right-hand structures.

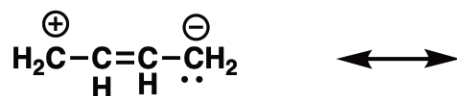
<http://bit.ly/Res-MOC-8>



Section D: Draw One Resonance Form For The Molecule

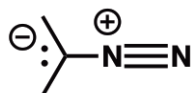
D-1 Draw a more important contributing structure for each of these two examples. Use curved arrows and show formal charges.

<http://bit.ly/Res-MOC-9>



D-2 a) Draw a reasonable resonance structure for this molecule:

<http://bit.ly/Res-MOC-10>

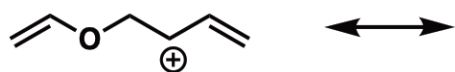


b) Which is more favorable? Why?

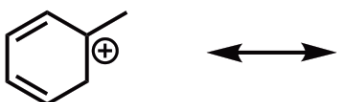
c) Draw the resonance hybrid of this molecule (use partial bonds and partial charges as required)



D-3 Draw a single REASONABLE resonance structure of these species. Use curved arrows. Show lone pairs and formal charges.

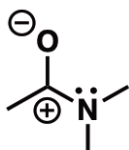


<http://bit.ly/Res-MOC-11>



Section E: Draw all resonance forms for a molecule, or all “reasonable” resonance forms.

E-1 Create two reasonable resonance drawings for this molecule:



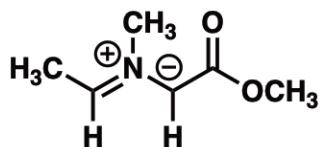
<http://bit.ly/Res-MOC-12>

Of the three resonance forms, which is the least important (“stable”)?



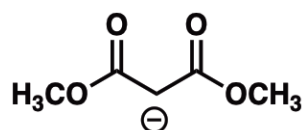
E-2 Draw two resonance structures and use curved arrow notation to show how they can be interconverted

<http://bit.ly/Res-MOC-13>



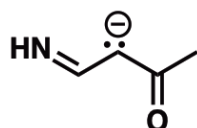
E-3 Draw two resonance structures and use curved arrow notation to show how they can be interconverted

<http://bit.ly/Res-MOC-14>



E-4 Draw two other contributing structures for this species

<http://bit.ly/Res-MOC-15>

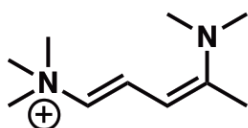
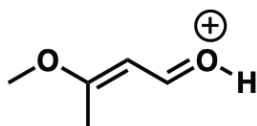


Which one is most important, and why?



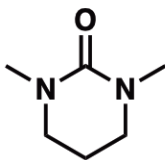
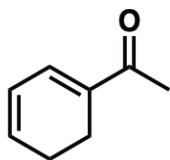
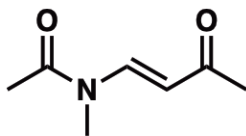
E-5 Draw the next two most important resonance forms of each molecule. Indicate formal charges.

<http://bit.ly/Res-MOC-16>



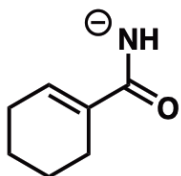
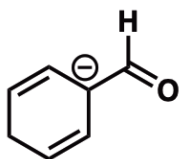
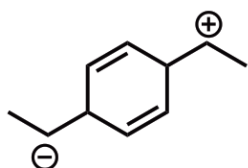
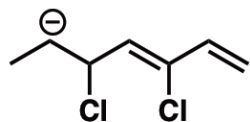
E-6 Provide three additional reasonable resonance structures for each of the following compounds.

<http://bit.ly/Res-MOC-17>

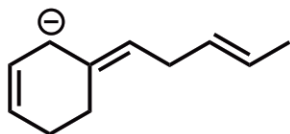
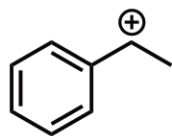




E-7 Draw all other reasonable resonance structures (if any)

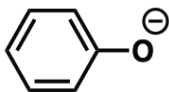


E-8 Draw all other reasonable resonance structures for these molecules.



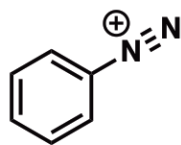
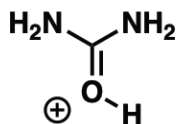
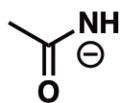
E-9 Draw the important resonance forms of this molecule:

<http://bit.ly/Res-MOC-20>



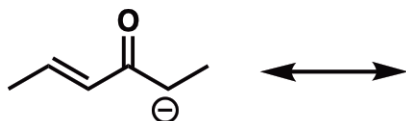
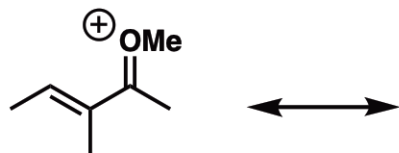
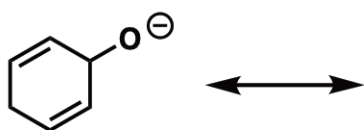
E-10 Draw important resonance forms of:

<http://bit.ly/Res-MOC-21>



E-11 Draw all other reasonable resonance structures.

<http://bit.ly/Res-MOC-22>



Section F - Draw Resonance Forms And Structure

<http://bit.ly/Res-MOC-23>

F-1 Draw the two most important contributing structures for nitromethane CH_3NO_2 which has N bonded to C and no bonds between oxygens.



F-2 Draw both resonance forms of diazomethane $[\text{CH}_2\text{N}_2]$. Show lone pairs and any formal charge.

<http://bit.ly/Res-MOC-24>



F-3 Draw the most important resonance forms of CH_3NCHO^- [hint: not cyclic]

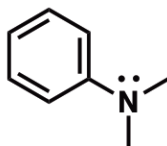
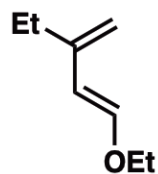
<http://bit.ly/Res-MOC-25>



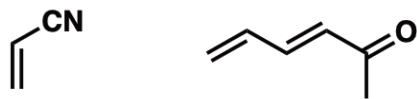
Section G - Which Carbon Bears Partial Charge?

G-1 Which carbons bear partial negative charge? Justify with resonance structures.

<http://bit.ly/Res-MOC-26>



G-2 Which carbons bear partial positive charge?
Justify with resonance structures.



Section H - Draw Radical Resonance Forms

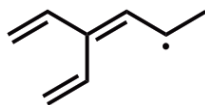
H-1 Show interconversion between these resonance forms using curved arrow notation. Which is more important?

<http://bit.ly/Res-MOC-28>



<http://bit.ly/Res-MOC-29>

H-2 Draw all resonance forms for this molecule and indicate which is the most important.



H-3 Draw all resonance structures for the compound below.

<http://bit.ly/Res-MOC-30>

