

# Resonance Exam Preparation Pack

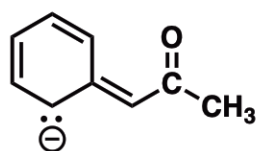
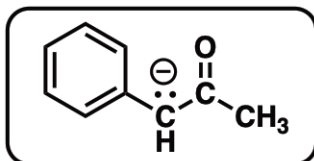
note - all problems can also be found [here](#) (link)

## Section A: Identifying Proper Resonance Forms

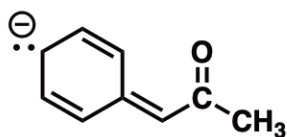
Link to answer

<https://bit.ly/3APtZkv>

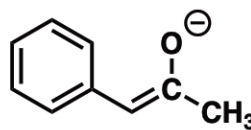
A-1 Which of these molecules is NOT a resonance form of



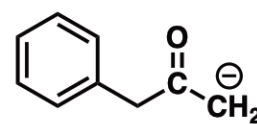
A



B

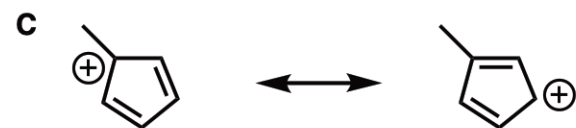
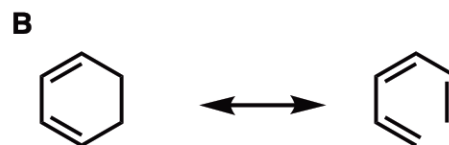
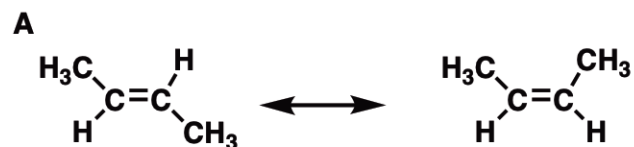


C

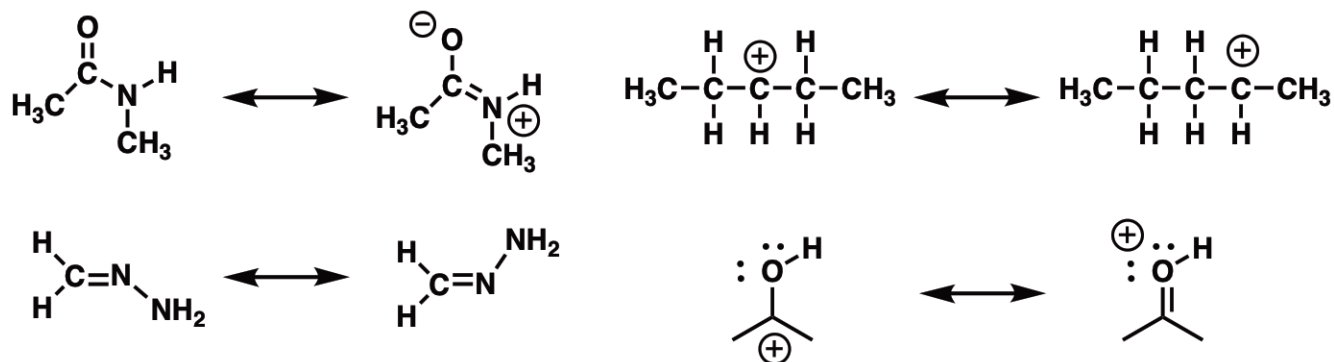


D

A-2 Which of these represents a pair of resonance forms? <https://bit.ly/2XQpx6p>



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

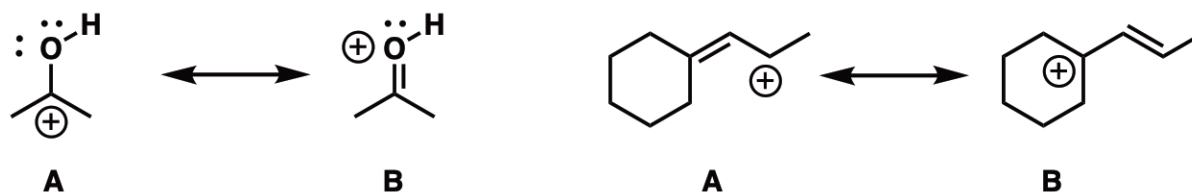


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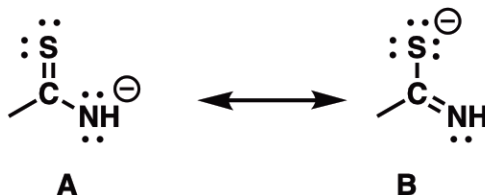


## Section B: Identifying Important Resonance Forms

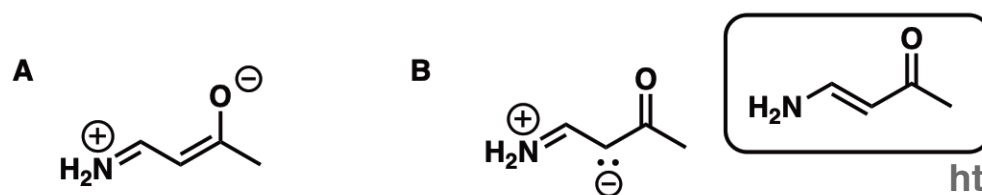
B-1 Which resonance form is more important?



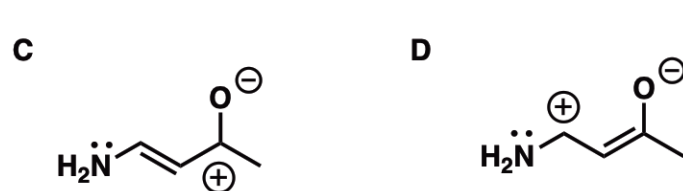
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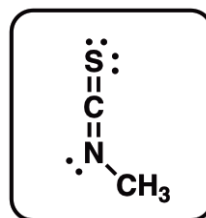
B-2 Which resonance form contributes the most to the resonance hybrid of



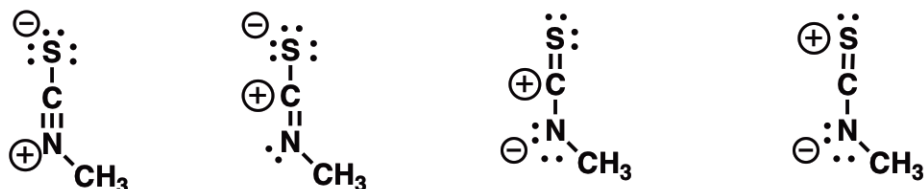
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**B-3** Which resonance form contributes the most to the resonance hybrid of



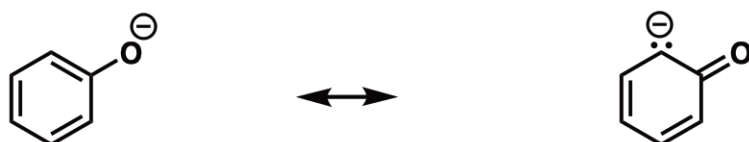
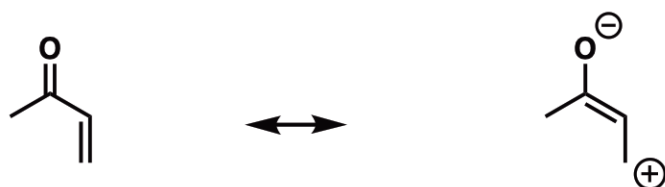
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### Section C: Drawing Curved Arrows

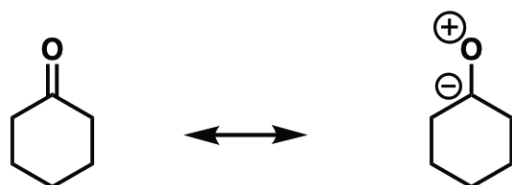
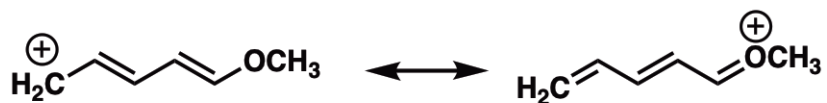
**C-1** Draw in the curved arrows to convert left-hand resonance forms to the right-hand resonance form.

<https://bit.ly/3AL9ANr>



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

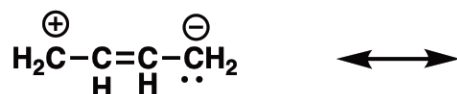
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### Section D: Draw One Resonance Form For The Molecule

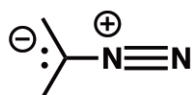
**D-1** Draw a more important contributing structure for each of these two examples. Use curved arrows and show formal charges.

<https://bit.ly/3zP0CNV>



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

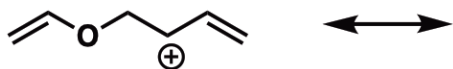
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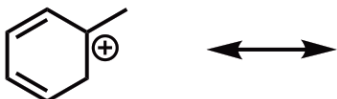
b) Which is more favorable? Why?

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.

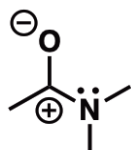


<https://bit.ly/39I59qV>



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

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



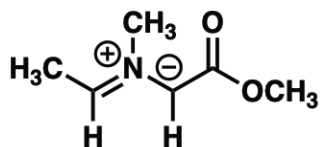
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Of the three resonance forms, which is the least important (“stable”)?



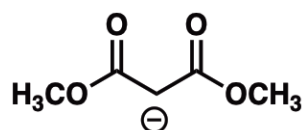
**E-2** Draw two resonance structures and use curved arrow notation to show how they can be interconverted

<https://bit.ly/3kOEWNB>



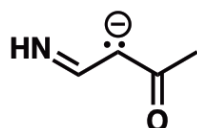
**E-3** Draw two resonance structures and use curved arrow notation to show how they can be interconverted

<https://bit.ly/3ukQpHI>



**E-4** Draw two other contributing structures for this species

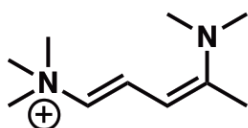
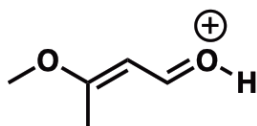
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Which one is most important, and why?

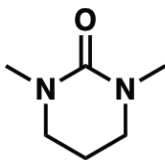
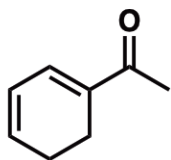
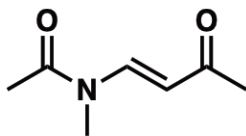
**E-5** Draw the next two most important resonance forms of each molecule. Indicate formal charges.

<https://bit.ly/3urUQAH>



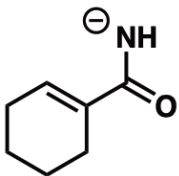
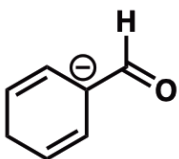
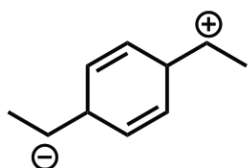
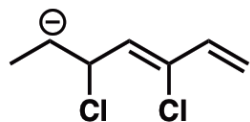
**E-6** Provide three additional reasonable resonance structures for each of the following compounds.

<https://bit.ly/3kOt65Y>



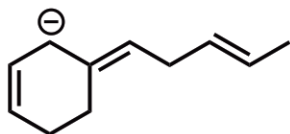
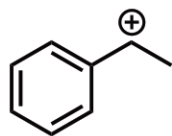


E-7 Draw all other reasonable resonance structures (if any)

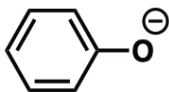




**E-8** Draw all other reasonable resonance structures for these molecules.

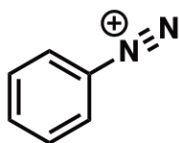
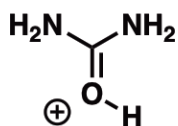
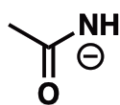


**E-9** Draw the important resonance forms of this molecule:



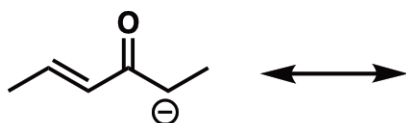
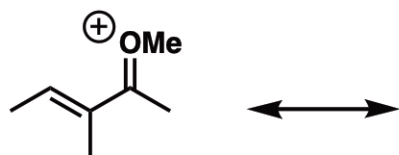
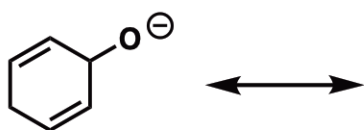
E-10 Draw important resonance forms of:

<https://bit.ly/2WoWI0C>



E-11 Draw all other reasonable resonance structures.

<https://bit.ly/3uiwIWF>



**Section F - Draw Resonance Forms And Structure**

<https://bit.ly/3zJR3zK>

**F-1** Draw the two most important contributing structures for nitromethane  $\text{CH}_3\text{NO}_2$  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.

<https://bit.ly/3zPkZug>



**F-3** Draw the most important resonance forms of  $\text{CH}_3\text{N}^{\ominus}\text{CHO}$  [hint: not cyclic]

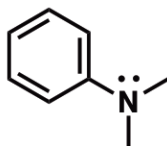
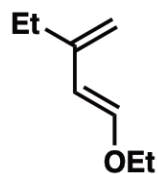
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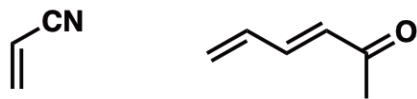
**Section G - Which Carbon Bears Partial Charge?**

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

<https://bit.ly/2Wkh4le>



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



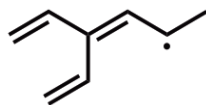
### Section H - Draw Radical Resonance Forms

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

<https://bit.ly/3uix1LI>



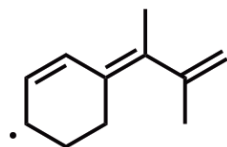
**H-2** Draw all resonance forms for this molecule and indicate which is the most important.



<https://bit.ly/2XSaNE6>



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



<https://bit.ly/3zJysE0>

