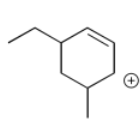
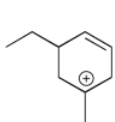
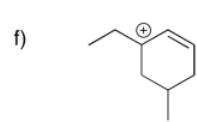
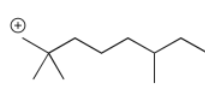
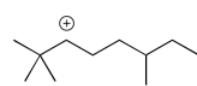
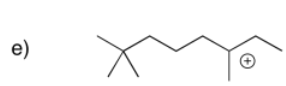
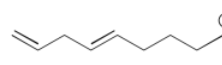
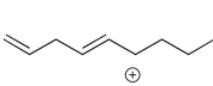
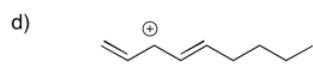
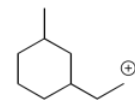
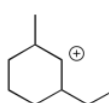
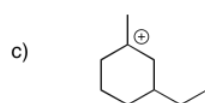
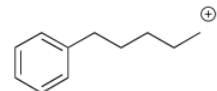
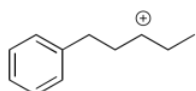
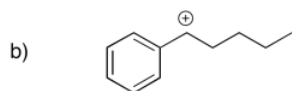
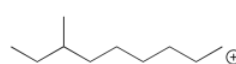
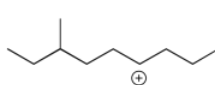
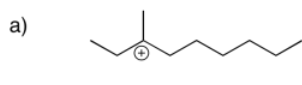
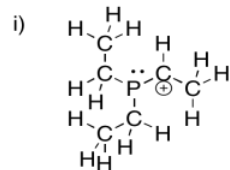
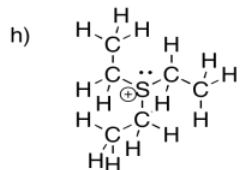
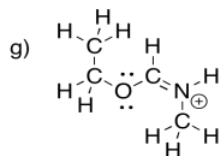
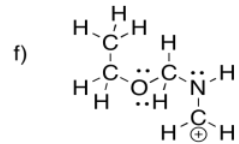
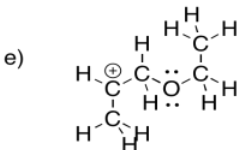
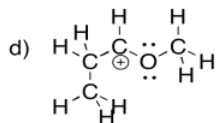
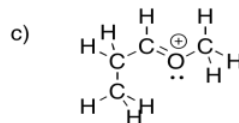
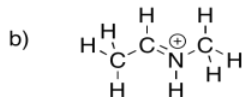
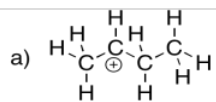
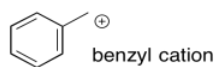
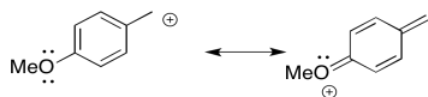


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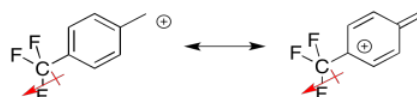


a)



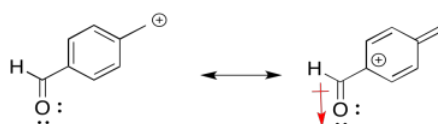
more stable - extra delocalisation

b)



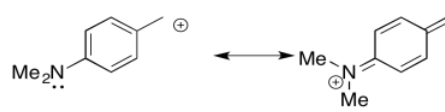
less stable - charge repulsion

c)



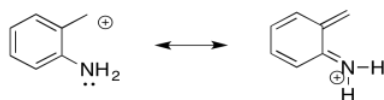
less stable - charge repulsion

d)



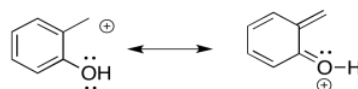
more stable - extra delocalisation

e)



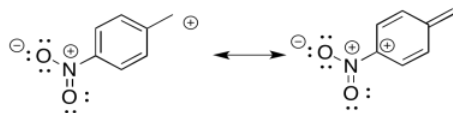
more stable - extra delocalisation

f)



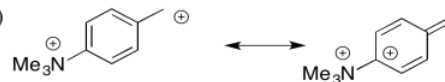
more stable - extra delocalisation

g)

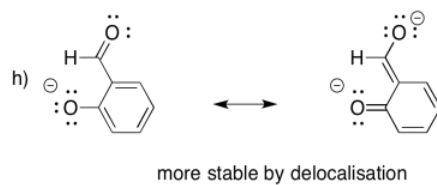
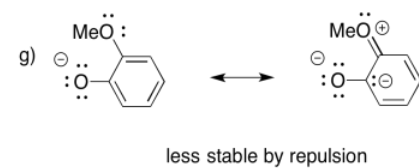
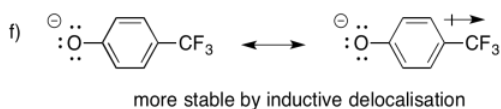
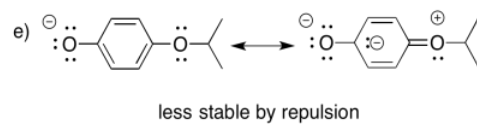
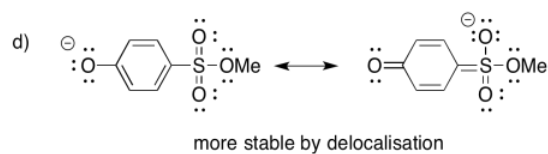
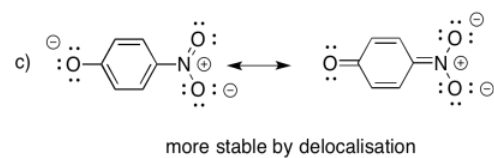
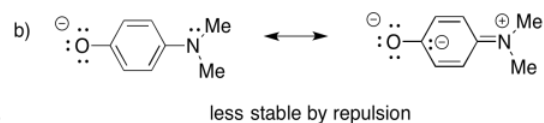
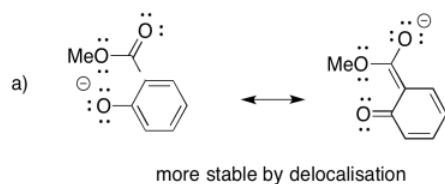
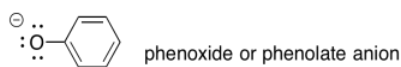


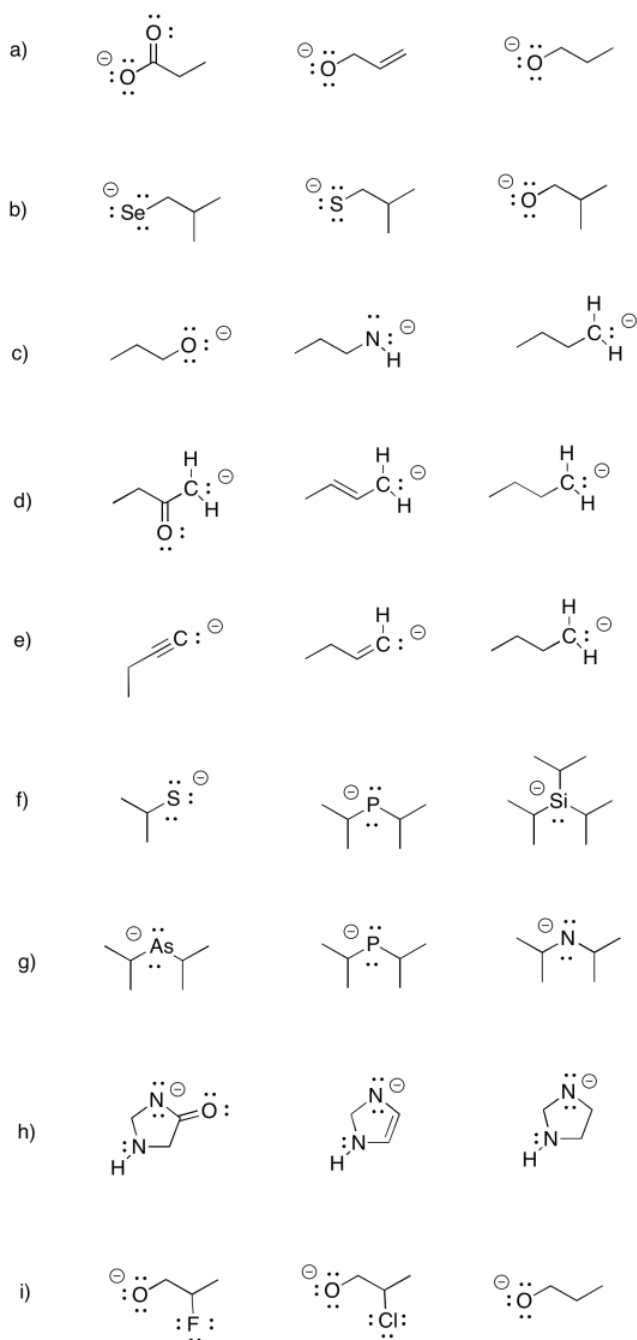
less stable - charge repulsion

h)



less stable - charge repulsion





$$\text{a) formal charge} = \#e^- \text{ in periodic table} - \#e^- \text{ nonbonding} - \frac{\#e^- \text{ in bonds}}{2}$$

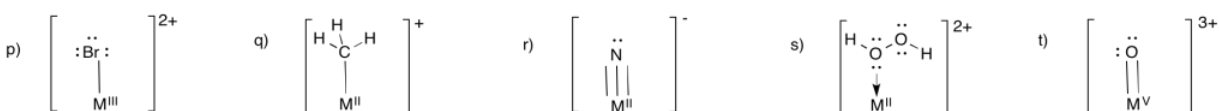
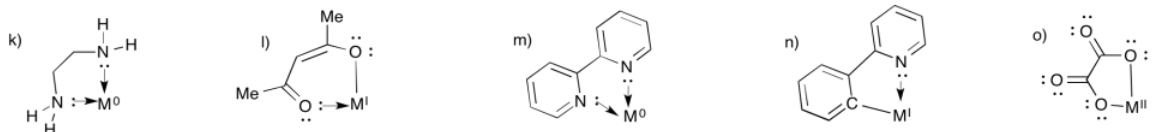
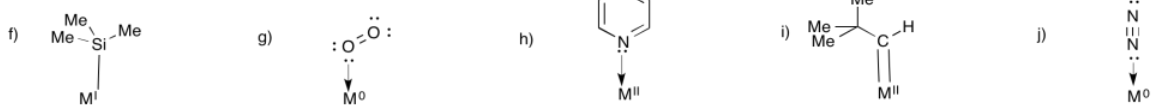
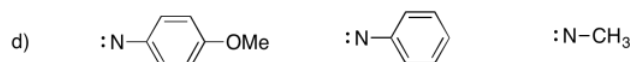
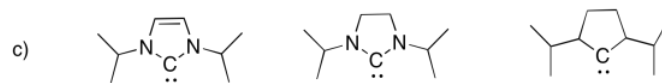
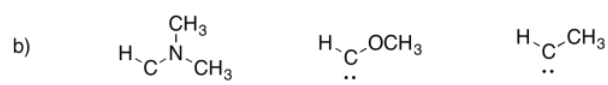
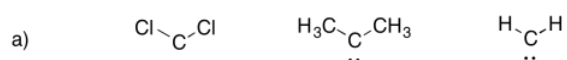
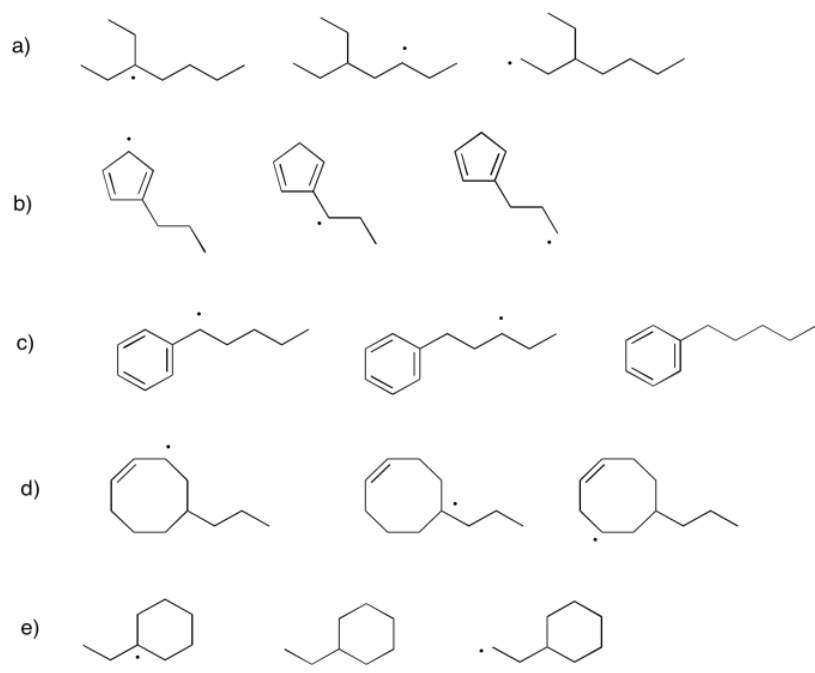
$$\text{formal charge} = 4 - 1 - \frac{6}{2} = 0$$

$$\text{b) formal charge} = \#e^- \text{ in periodic table} - \#e^- \text{ nonbonding} - \frac{\#e^- \text{ in bonds}}{2}$$

$$\text{formal charge} = 5 - 3 - \frac{4}{2} = 0$$

$$\text{c) formal charge} = \#e^- \text{ in periodic table} - \#e^- \text{ nonbonding} - \frac{\#e^- \text{ in bonds}}{2}$$

$$\text{formal charge} = 6 - 5 - \frac{2}{2} = 0$$



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