

**Revised May 2007**



## AP WORKED ANSWERS

**2007, 6**

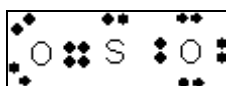
**Points 1, 1, 2, 1, 2, 1, 1**

(a)



(b) T-shaped

(c)

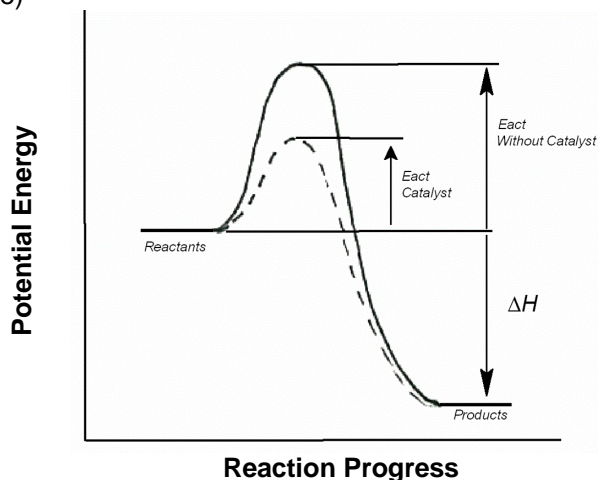


**(N.B. Only one resonance structure shown)**

The double bond can form on either side of the sulfur atom (i.e. between the sulfur and either oxygen atom). This leads to two resonance structures which "average out" to give a bond length that is intermediate between a Sulfur-Oxygen single and Sulfur-Oxygen double bond.

(d)  $sp^2$

(e)



(f) An increase in temperature would drive the reaction to the reactant side (in order to reduce the heat according to Le Chatelier's principle) causing the ratio of  $\frac{pSO_2}{pSO_3}$  to be increased.

(g) It would not affect the ratio, only the speed at which the ratio is achieved.