

# Think It Over



*This section of Resonance is meant to raise thought-provoking, interesting, or just plain brain-teasing questions every month, and discuss answers a few months later. Readers are welcome to send in suggestions for such questions, solutions to questions already posed, comments on the solutions discussed in the journal, etc. to Resonance Indian Academy of Sciences, Bangalore 560 080, with "Think It Over" written on the cover or card to help us sort the correspondence. Due to limitations of space, it may not be possible to use all the material received. However, the coordinators of this section (currently C S Yogananda and R Nityananda) will try and select items which best illustrate various ideas and concepts, for inclusion in this section.*

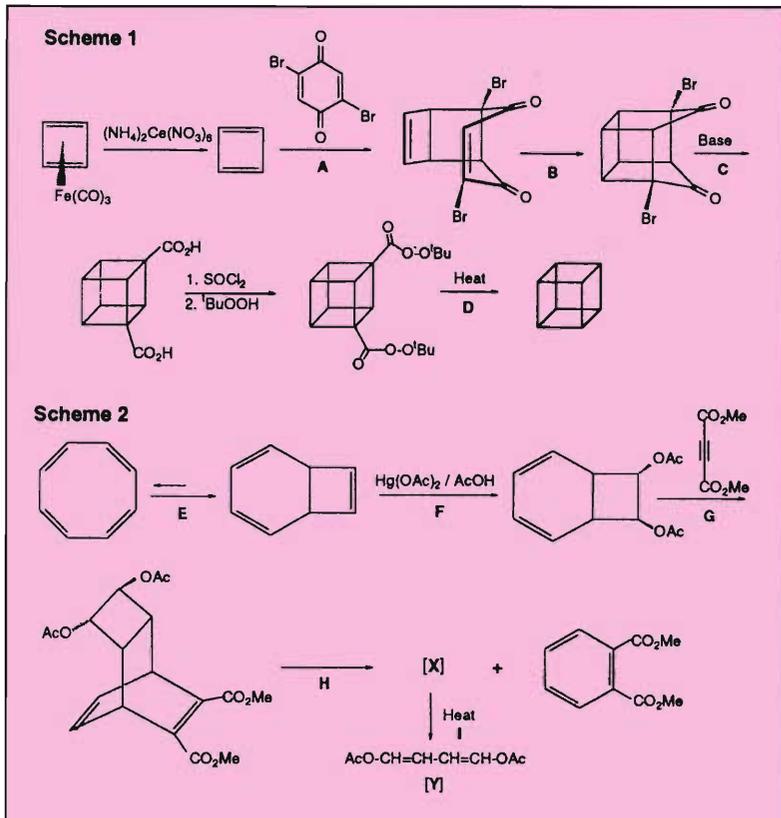
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## **! Organic Reaction Mechanisms**

In the fourth part of the series article (pages 41-52) we have discussed an alternative way of looking at pericyclic reactions. Even though several textbook examples have been provided, it is always best for a beginner to try to understand a new reaction mechanistically. For this purpose, two multi-step reaction sequences are shown below (Schemes 1 and 2). The steps marked A-I should be understood in terms of mechanistic principles. Note however, that not all these steps involve pericyclic reactions! Some of them are interesting (and important) for other reasons.

## **Suggested Reading**

- ◆ D Ranganathan and S Ranganathan. *Further challenging problems in organic reaction mechanisms, recommended pathways and pointers to problem solutions*. Academic Press. New York, 1980.



Can you answer the following questions?

- 1) Which steps (A-I) involve a pericyclic reaction mechanism?
- 2) Which of these are thermal reactions and which are photochemical?
- 3) One of the (non-pericyclic) steps shown in Scheme 1 is a well-known name reaction. Can you identify it? What is the name reaction?
- 4) What is compound X?
- 5) What is the stereochemistry of compound Y? Why is it formed exclusively?
- 6) Do you know the mechanism of the non-pericyclic steps in Schemes 1 and 2?