Section 12.3  DIELS-ALDER REACTION.  Part B.  REACTION OF 1,3-CYCLOPENTADIENE AND MALEIC ANHYDRIDE (Miniscale)

NAME (print): ______________________________________ DATE: ________________
INSTRUCTOR: __________________________ LABORATORY SECTION: ________________

1. What conformation is required to enable a 1,3-diene to undergo the Diels-Alder reaction?

2. What is the limiting reagent in the reaction between 1,3-cyclopentadiene and maleic anhydride, and why do you think this reagent rather than the other one was made limiting? Show your calculations.

3. Why does 1,3-cyclopentadiene react more rapidly with maleic anhydride than with another molecule of itself?

4. Why is a 25-mL rather than a 10-mL round-bottom flask to be used for cracking dicyclopentadiene when only 7 mL of this substance is being cracked?

5. Why is a fractional rather than a simple distillation apparatus specified for the cracking of dicyclopentadiene?
6. Why is the solution of maleic anhydride in ethyl acetate-petroleum ether to be homogeneous when 1,3-cyclopentadiene is added to it?

7. Why is the solution containing the desired product to be cooled slowly?

8. What type of filtration, gravity or vacuum, is to be used for isolating the product?

9. Is dicyclopentadiene a carcinogen?

10. List the possible effects of inhaling excessive amounts of 1,3-cyclopentadiene.

11. The flash points (°C) of dicyclopentadiene and ethyl acetate are, respectively, _______ and _______.

12. What action should you take if maleic anhydride gets in your eyes?