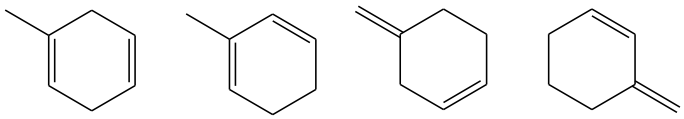
CHAPTER 14 (Dienes - Practice Exercises)

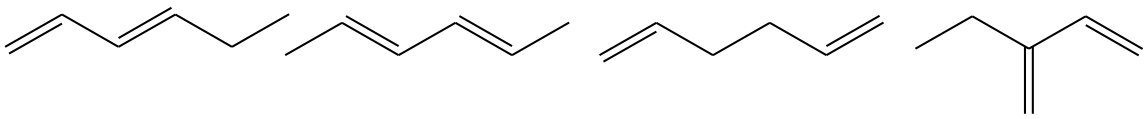
1. Select the most stable dienes structure in each set. Circle the correct one in each set.

Part A.



A B C D

Part B.



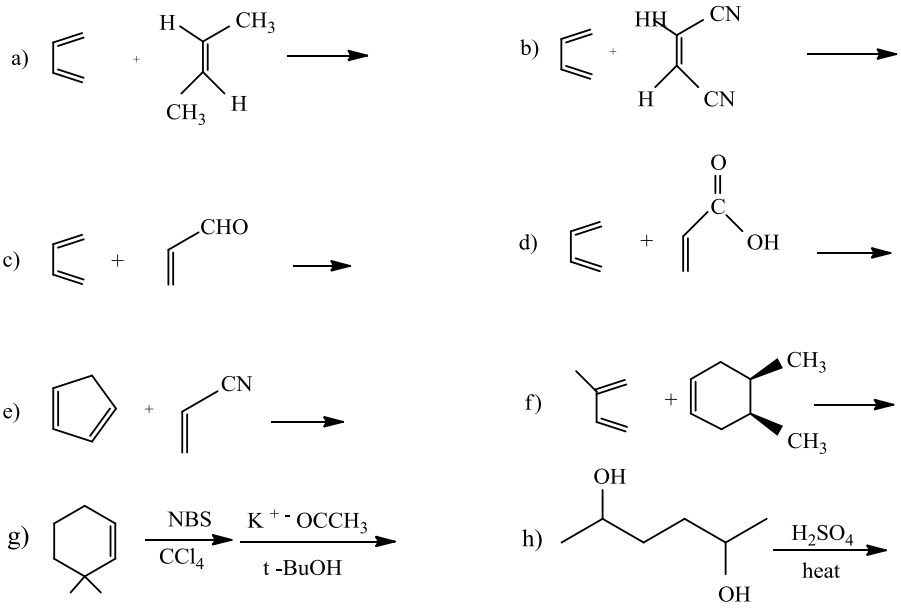
A B C D

Part C.

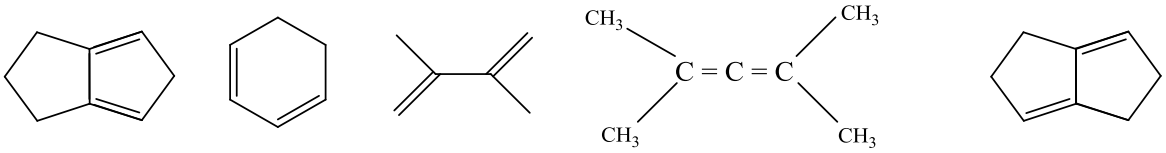
$CH_2 = CH - CH = C = CH_2$ $CH_2 = C = CH - CH_2 - CH_3$ $CH_2 = CH - CH_2 - CH = CH_2$

A B C

2. Select the major product from the structures below for the reactions shown:

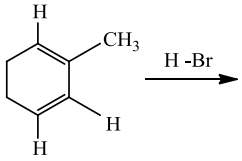


3. Which of the following dienes **cannot** be used as the component in a Diels Alder Reaction?
(You may check more than one):



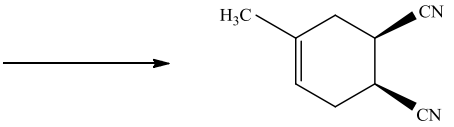
A B C D E

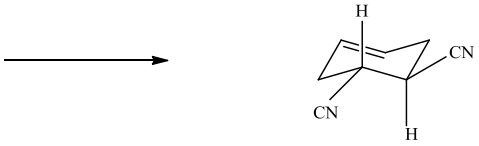
4. Write a complete mechanism for the following reaction and explain kinetic product stability vs thermodynamic product stability.

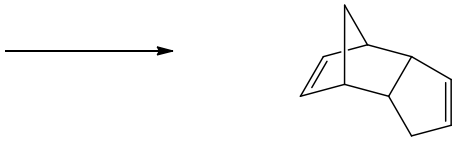


5. Using a **cyclo addition** reaction (4+2), suggest a synthesis for each of the molecules shown below, paying very careful attention to stereochemistry.

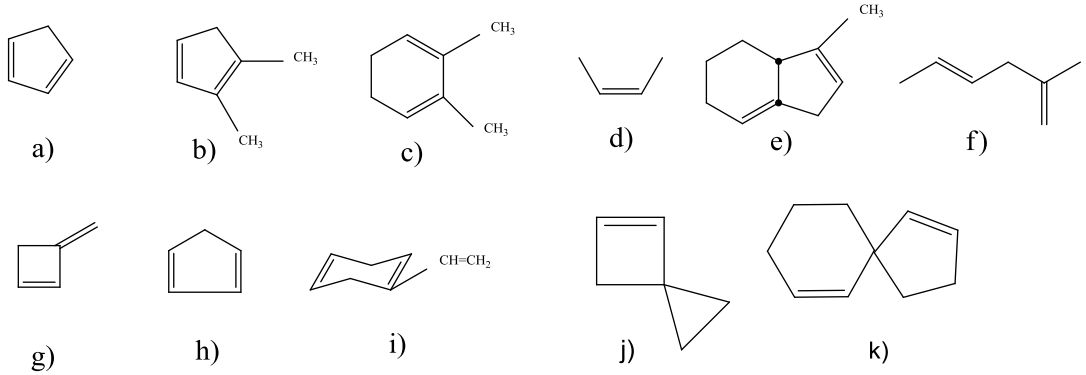
a) 

b) 

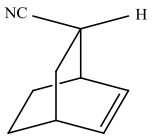
c) 

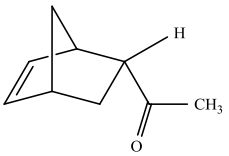
d) 

6. Give the proper **IUPAC** name for each of the compound shown below.



7. Using a **(4+2) cyclo addition reaction**, suggest a synthesis for each of the molecules below, paying very careful attention to stereochemistry.

a) 

b) 

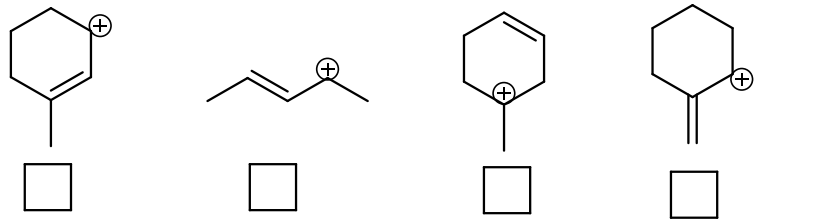
8. Write a complete reactions for the following:

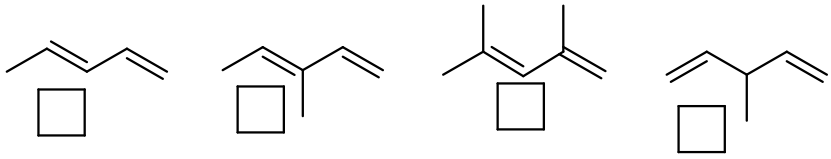
a) Allylic bromination of 1 - butene followed by **dehydrobromination**

b) Addition of HBr to 1,3-butadiene (**DO ONLY 1,4-addition**)- thermodynamically stable product.

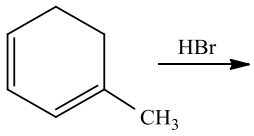
c) Addition of Br_2 to 1,3-cyclohexadiene (**DO ONLY 1,2-addition**)- kinetically stable product.

9. Identify the stability trend (**1 = highest , 4 = lowest**)

a) 

b) 

10. Write a complete **mechanism** for the following reactions. Please show all electron flows and intermediates.

a) 

b)