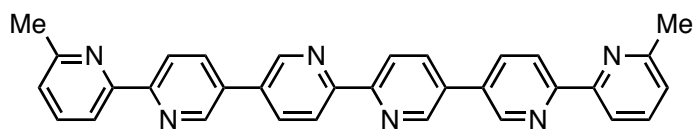
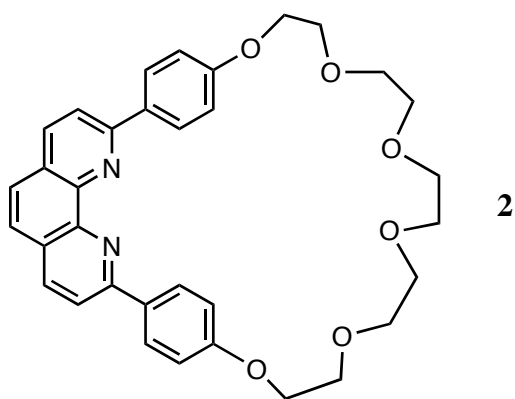


Problem 1: Compounds **1** and **2** (3 equiv.) undergo self-assembly in the presence of Cu^+ ions (3 equiv.). Propose the structure of the assembly. Propose a synthesis for **2** starting from 1,10-phenanthroline. (10 pt)

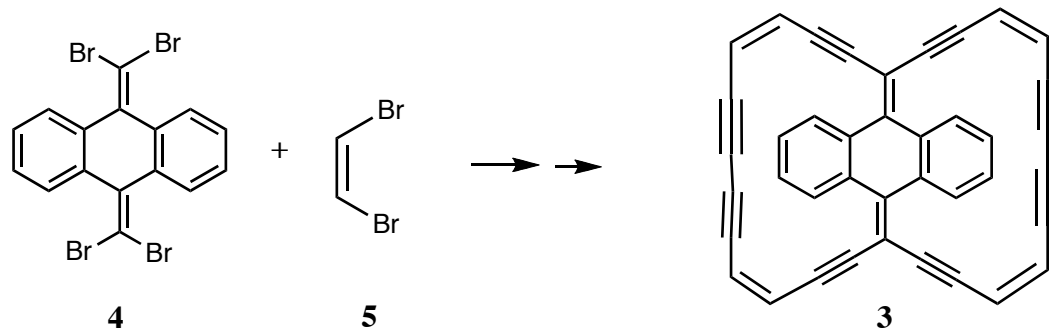


1

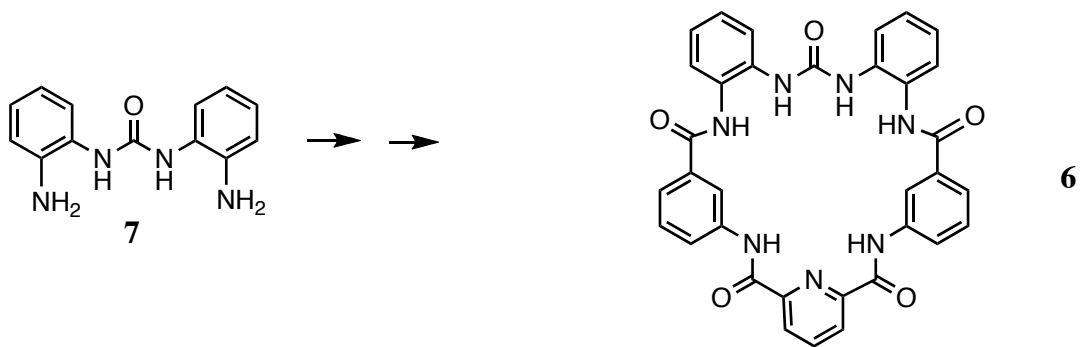


2

Problem 2: Propose a synthesis for **3** starting from **4** and **5** (and using other small acetylenic C₂ building blocks. (10 pt)



Problem 3: Propose a synthesis for **6** starting from urea **7**. Compound **6** complexes 1 equiv. of acetate in DMSO/0.5% H₂O. Propose the binding mode and how you would detect binding in solution. How would you confirm the stoichiometry of the complex?
(10 pt)



Problem 4: Propose a synthesis for **8** starting from **9**, using phenylacetylenic building blocks. Compound **8** undergoes multicomponent assembly with 1,3,5-benzenetricarboxylic acid in CHCl_3 . Propose the structure of this assembly. (20 pt)

