

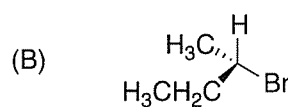
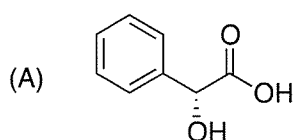
Organic Chemistry I

I-a Draw structures corresponding to these names.

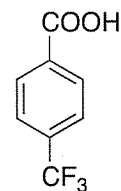
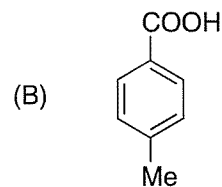
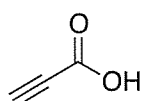
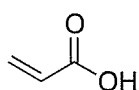
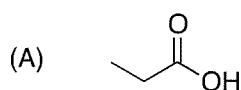
(A) methyl 3-aminobenzoate

(B) 3-oxobutanal

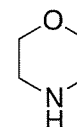
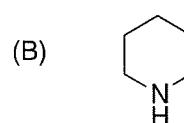
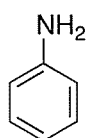
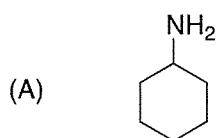
I-b Assign a configuration, R or S, to each of these compounds.



I-c Show the order of the following molecules from strong to weak acids.

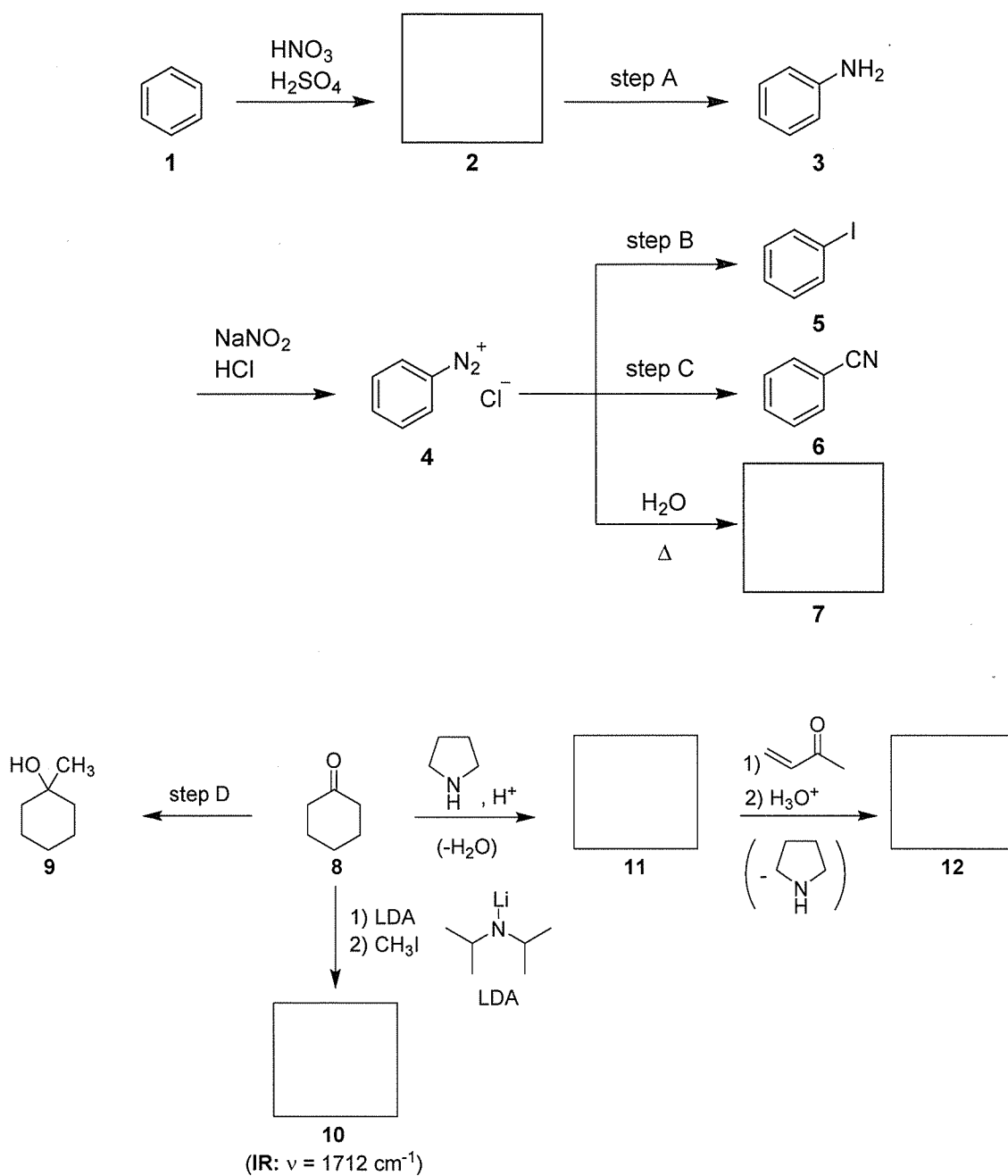


I-d Show the order of the following molecules from strong to weak bases.



I-e

Answer the questions in the molecular transformations shown below.



(1) Show the structures of compounds **2**, **7**, **10**, **11**, and **12**.

(2) Show the reagents for the step A~D.

(3) Show the reaction mechanism to give **11** from **8**.

Organic Chemistry II

II – a Answer the following questions.

(1) Draw the structural formula of 2,3-diphenylcyclopropanone.

(2) The reaction of 2,3-diphenylcyclopropanone with HBr gives the salt.

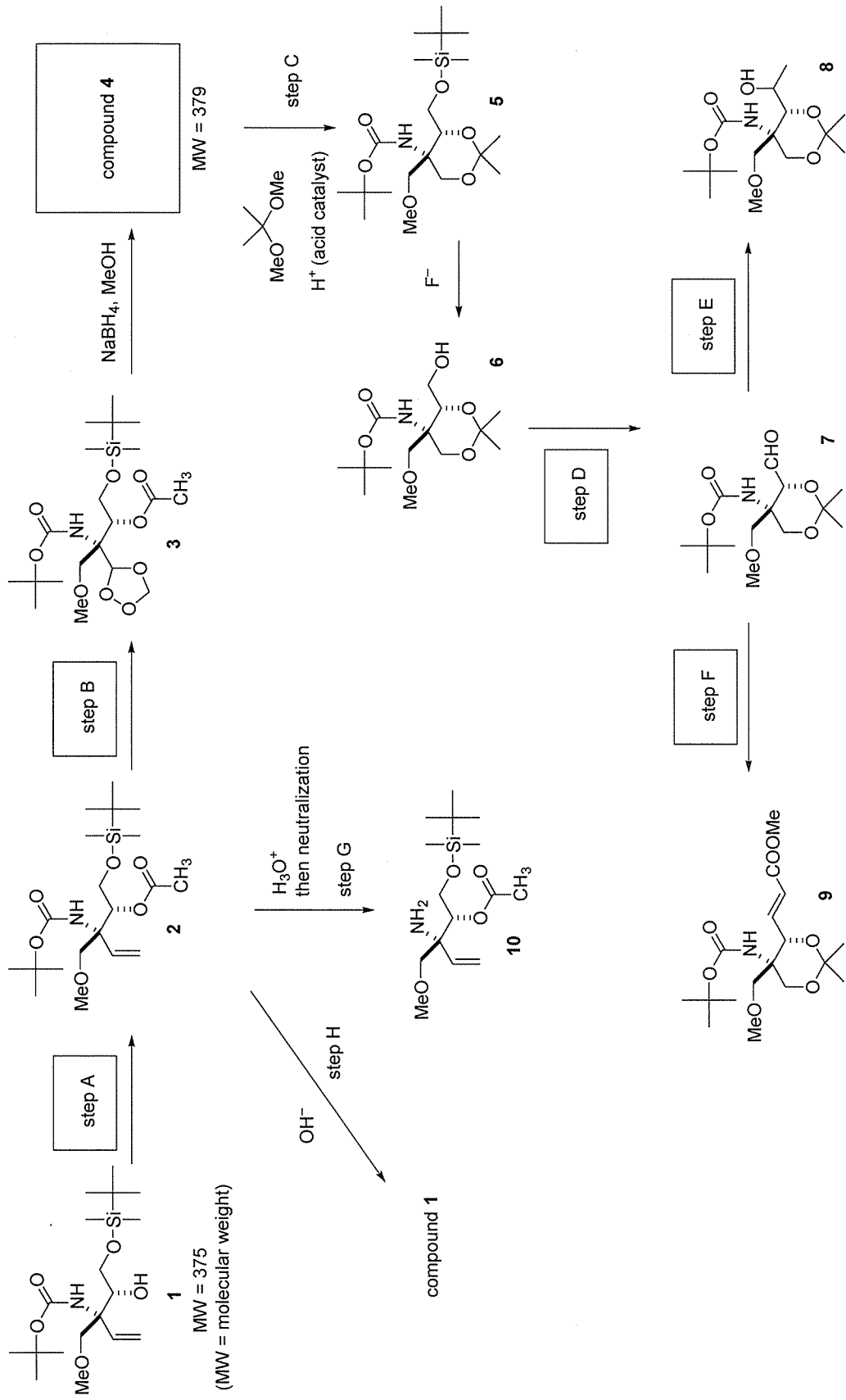
(2)-i Predict the structural formula of the salt.

(2)-ii Suggest a reaction mechanism to give the salt.

(3) Suggest with explanations that the salt product shows the aromaticity or not.

II-b

Answer the following questions in the molecular transformations shown below.



(1) Answer the absolute configuration of the quaternary chiral carbon of compound **1**.

(2) Show the structures of the compound **4**.

(3) Show the reagents and/or conditions for the steps A, B, D, E, and F.

(4) Show the reaction mechanism to give compound **4** from **5** (step C).

(5) Show the reaction mechanism to give compound **2** from **10** (step G).

(6) Show the reaction mechanism to give compound **2** from **1** (step H).