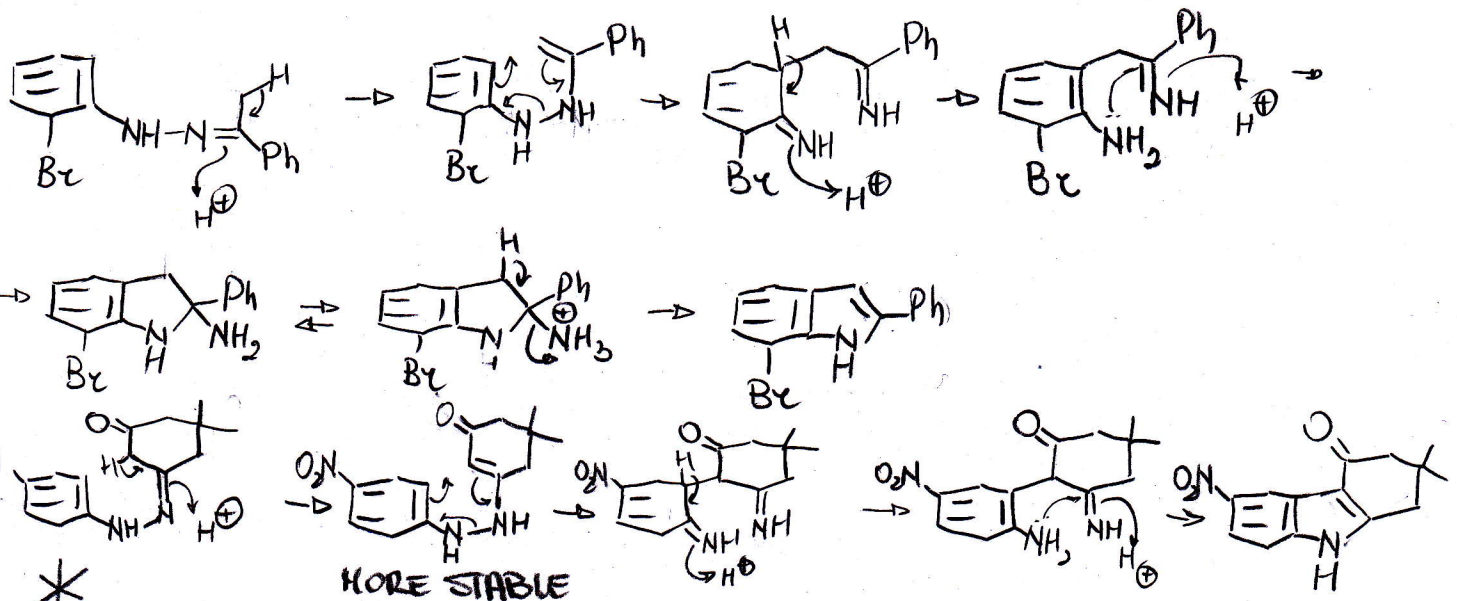
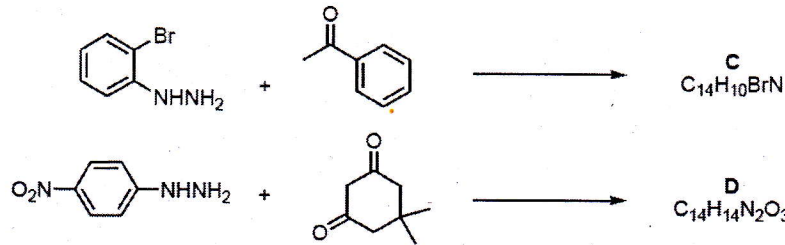


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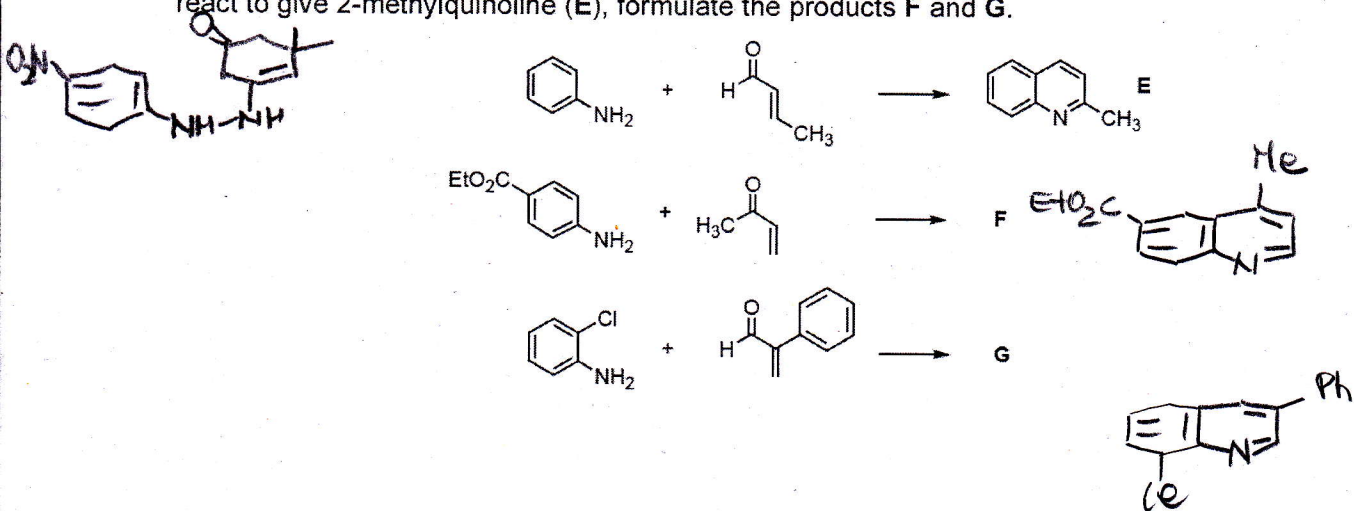
First Name

ID number

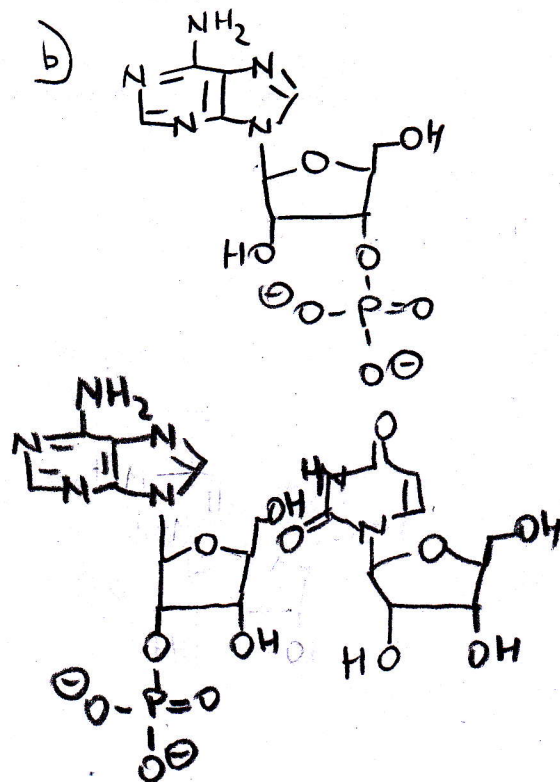
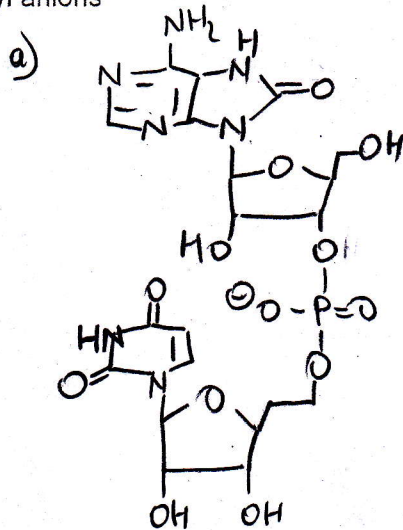
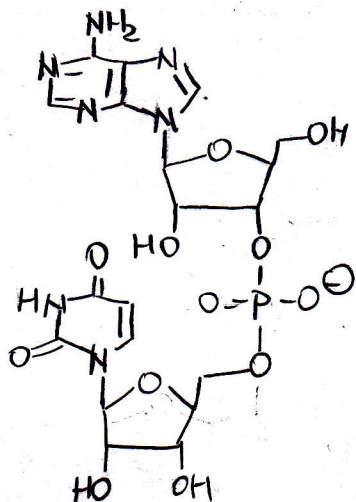
1. (9 points) Identify products **C** and **D**, and explain why only one structural isomer is formed for both. A mechanism of the reaction is required, and you should show relevant intermediate(s) to help justify your answer.



2. (9 points) Given that in the Doebner-von Miller quinoline synthesis *trans*-but-2-enal and aniline react to give 2-methylquinoline (**E**), formulate the products **F** and **G**.



3. (9 points) What product(s) would you expect to be formed when the RNA dimer r-AU reacts with:
 a) Hydroxyl radicals b) Hydroxyl anions



4. (6 points) Provide the product of the following reaction (IPA=Isopropyl alcohol) and explain why you think is the right one i.e. chemo- and regioselectivity.

