

Exercises KJ 5220

November 23, 2009

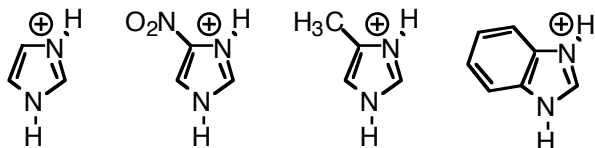
Left overs from last week

1

Benzimidazole has 2 ionization constants (pK_a 12.9 and 5.3). To which acid-base equilibrium do these correspond.

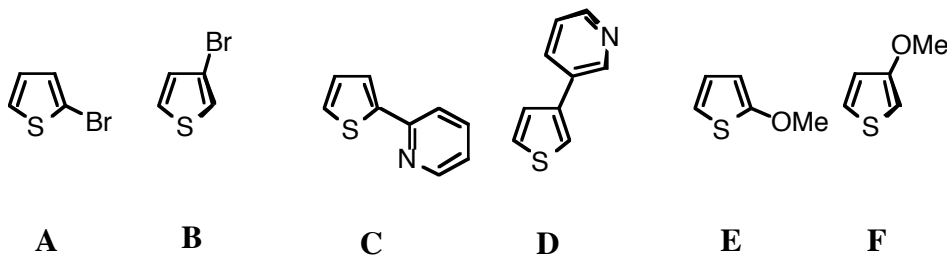
2.

Arrange the following species in order of increasing acidity, explain



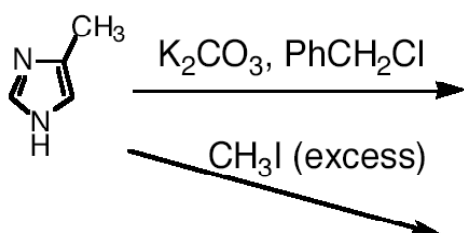
3.

Suggest synthesis of the following compounds, starting from thiophene



4.

Which products will you expect from the following reactions

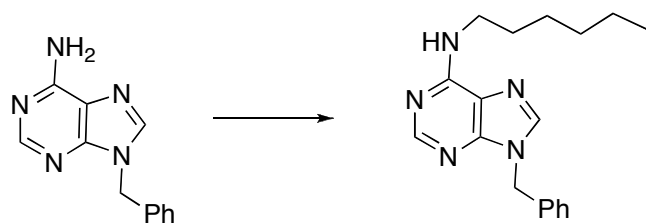


5.

Design syntheses of all isomers of bromothiazole from commercially available starting materials

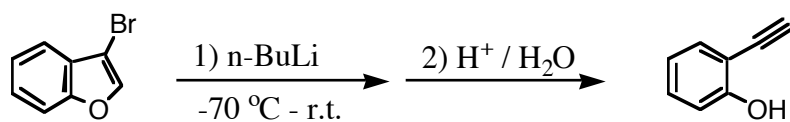
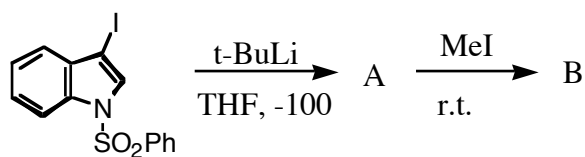
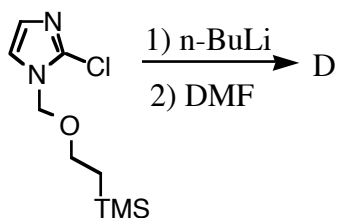
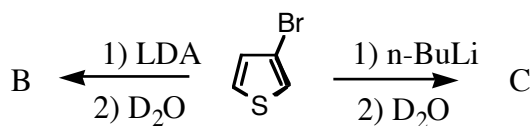
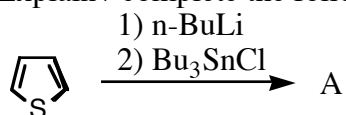
6.

Suggest at least 3 different ways for this transformation



7.

Explain / complete the following reactions



8.

Suggest syntheses of all isomers of trimethylstannylthiazole. Available heterocyclic starting materials are thiazole and 2,4-dibromothiazole.