1. Circle the compound whose IR spectrum is shown below.

![IR Spectrum](image)

There is no O-H stretch, so the carboxylic acid and alcohol are ruled out. The peak at 1597 cm\(^{-1}\) is the C=C stretch, indicative of the aromatic aldehyde, but because this peak is slightly lower than the range given on the chart you used, I gave credit for either answer.

2. List the functional groups present in the compound you circled:

- (alkane) aldehyde
- aromatic aldehyde
- (alkane) carboxylic acid
- aromatic alcohol

3. The pKa of the boxed proton for each compound is shown below.

   ![pKa Values](image)

   (a) Arrange the compounds in order from least acidic to most acidic.
Least Acidic \( \_C\_\_\_ < \_B\_\_ < \_A\_\_ < \_D\_\_ \) Most Acidic

(b) Draw the products of the reaction below, and indicate with an equilibrium arrow which side is favored.