

- 1. As drawn, which functional group has the lowest pKa?**
 - Alcohol.
 - Ammonium group.
 - Carboxylate.
- 2. The structure of ATP is shown. What functional group is enclosed by the dotted line marked A?**
 - A conjugate base related to phosphoric acid
 - A phosphate / phosphoric anhydride
 - An amide of phosphoric acid (= phosphoramidate)
 - A phosphate / phosphoric ester
 - An acidic proton on a phosphoric acid derivative
- 3. The structure of ATP is shown. What functional group is enclosed by the dotted line marked B?**
 - A conjugate base related to phosphoric acid
 - A phosphate / phosphoric anhydride
 - An amide of phosphoric acid (= phosphoramidate)
 - A phosphate / phosphoric ester
 - An acidic proton on a phosphoric acid derivative
- 4. The structure of ATP is shown. Which option below best describes the negatively charged oxygens?**
 - A conjugate base related to phosphoric acid
 - A phosphate / phosphoric anhydride
 - An amide of phosphoric acid (= phosphoramidate)
 - A phosphate / phosphoric ester
 - An acidic proton on a phosphoric acid derivative
- 5. The pKa of an amine is higher than the pKa of a carboxylic acid.**
 - True
 - False