

1. Which structures are resonance forms of each other? Mark all that apply.

- A A & B
- B A & C
- C A & D
- D B & C
- E B & D
- F C & D

2. Which structures are tautomers? Mark all that apply.

- A A & B
- B A & C
- C A & D
- D B & C
- E B & D
- F C & D

3. If this energy diagram represents the dissociation of an acidic species, which of the following statements are true? Mark all that apply.

- A The reaction is endergonic.
- B $K_a > 1$
- C The products are more stable than the reactants.
- D The reaction will occur.
- E $pK_a < 0$

4. Assume this diagram compares two acidic species. A is the stronger acid.

- A True
- B False

5. The structure of diphosphate is shown. Which of the following statements are true? Mark all that apply.

- A Diphosphate is an analog of an ester.
- B Diphosphate is a phosphate ester.
- C The structure shown is correct for a high pH, say $\text{pH} > 10$.
- D Diphosphate is created (in principle) from two molecules of phosphoric acid.
- E Diphosphate as drawn has two strongly acidic protons.