3 Points Each. Please mark your answers on the scantron sheet. You may keep this copy.

1. What is the geometry of the nitrogen atom in the following compound?

- a) octahedral
- b) tetrahedral
- c) trigonal planar
- d) linear

2. Which of the following compounds would you expect to be a Lewis Acid?

- a) $\text{H}_2\text{C}—\text{OH}$
- b) $\text{AlCl}_3$
- c) $\text{H}_3\text{C}—\text{N}—\text{CH}_3$
- d) $\text{C}_6\text{H}_6$

3. What is the correct structure for 1-chloro-1,3-dimethylcycloheptane?

- a) 
- b) 
- c) 
- d) 

4. Which of the following statements are TRUE?

- a) Resonance forms differ in their arrangement of sigma and pi bonds.
- b) Resonance is a fast equilibrium between two species.
- c) Resonance forms are lower in energy than the actual structure.
- d) Electrons in lone pairs can be delocalized into adjacent pi-bonds.

5. Which of the following molecules possesses tertiary (3°) hydrogens?

- a) 
- b) 
- c) 
- d) 

6. Consider the following acid base reaction.

$$\text{pK}_a = 9.9 \quad \text{pK}_a = 15.5$$

The equilibrium lies on the

- a) LEFT SIDE
- b) RIGHT SIDE

7. Which of the following is TRUE about inductive effects?

- a) They are stronger than resonance effects.
- b) They result in polar covalent bonds.
- c) They have no affect on acidity.
- d) They always result in ionic bonds.