Questions 1-10: Please mark the appropriate box on the front of the Scantron form (3 pts each).

1. What is the IUPAC name for the compound shown in the box?

   ![Chemical Structure]

   A) 1-isopropyl-2-tert-butylethane  B) 2,2,5-trimethylhexane
   C) 2,2,4,4,4-pentamethyldibutane  D) 2-methyl-5-ethylhexane

2. What is the IUPAC name of the alkane shown in the box as a line-angle structure?

   ![Chemical Structure]

   A) 3-ethyl-2,4,5,6-tetramethyloctane  B) 3-ethyl-2,4,5,6,7-pentamethyloctane
   C) 3-isopropyl-2,4,5-trimethyloctane  D) 3,4,5,7-tetramethyl-6-ethylheptane

3. Which is the structure of 3-(tert-butyl)-1,1-dimethylcyclobutane?

   ![Chemical Structures]

   A)  B)  C)  D)

4. Which one of the following compounds contains tertiary (3°) carbon atoms?

   A) cyclobutane  B) 1,2-dimethylcyclobutane  C) 1,1-dimethylcyclobutane  D) 1,1-diethylcyclobutane

5. Which compound has a ketone functional group and a triple bond in the parent chain?

   A) 1-pentyn-3-one  B) 3-pentynal  C) 2-buten-1-ol  D) 1-penten-3-one
6. Which one of the following Newman projections represents the anti conformation of normal pentane?

A)  
B)  
C)  
D)  

7. Which two of the following Newman projections represent 2,3-dimethylbutane?

A) 1 and 2  
B) 1 and 3  
C) 2 and 4  
D) 3 and 5  

8. Which one of the following conformers of 1-bromo-2-methylpropane has the highest energy?

A)  
B)  
C)  
D)  

9. Which one of the following structures of disubstituted cyclohexanes is expected to be the most stable?

A)  
B)  
C)  
D)  

10. The molecule shown in the box contains four methyl groups labeled A, B, C, and D. Which methyl group has the highest 1,3-diaxial interactions?