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

1. Which of the following is the least stable carbocation?

   A) \((\text{CH}_3\text{)}_3\text{CC(\text{CH}_3)_2}\)    B) \(\text{H}_2\text{CC(\text{CH}_3)_3}\)

2. What is the structure of the reaction intermediate for the reaction in the box?

3. What is the product of 1,2-hydride shift for the reaction in the box?

4. Which one of the following four schemes (A-D) represents a step in the mechanism of the reaction in the box?
5. Which of the following is the major product of the reaction of **methylene cyclopentane** with **HCl**?

A)  
B)  
C)  
D)  

6. What is the **main product** of the reaction shown in the box?

7. Which of the following **alkenes** yields the product shown in the box upon treatment with \( \text{Cl}_2/\text{H}_2\text{O} \)?

8. What is the **main product** of the reaction shown in the box?

9. Which of the following depicts the major product of the acid catalyzed **hydration** of **methylene cyclohexane**?

A)  
B)  
C)  
D)  

10. Which of the following is an important **intermediate** of the reaction shown in the box?