Chemistry 2542, Spring 2016
Quiz 2
(30 points)

Important notes:
- Please use the provided Scantron form for your answers; you can keep the sheet with the questions and can use it as scratch paper
- Do not forget to write your name on the Scantron form
- You will not receive credit for unmarked answers or for more than one mark on answer line
- Your scores will be posted on eGradebook; graded Scantron forms will not be returned to students.

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

1. Which one of the following structures is benzaldehyde?
   
   \[ \text{A) } \text{B) } \text{C) } \text{D) } \text{PhCO}_2\text{H} \]

2. What is the IUPAC name for the compound shown in the box?
   
   \[ \text{A) (E)-3,4-dimethyl-5-oxopentene-2-one } \quad \text{B) (Z)-3,4-dimethyl-5-oxopentene-2-one } \]
   \[ \text{C) (E)-2,3-dimethyl-4-oxopent-2-enal } \quad \text{D) (Z)-2,3-dimethyl-4-oxopent-2-enal } \]

3. What is the main product of the reaction shown in the box?
   
   \[ \text{A) 2-methyl-1,3-butadiene } \quad \text{B) 2-methyl-1,4-pentadiene } \]
   \[ \text{C) 2-methyl-1,5-hexadiene } \quad \text{D) 2-methyl-1,4-hexadiene } \]

4. What is the main product of the sequence of reactions shown in the box?
   
   \[ \text{A) } \text{B) } \text{C) } \text{D) } \]
5. What is the **main product** of the sequence of reactions shown in the box?

![Reaction Diagram]

A) 2-methyl-1-propene  B) 3-methoxy-2-methyl-1-propene  
C) 2-methyl-2-propen-1-ol  D) 2-methyl-1-butene

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

![Reaction Diagram]

A) (Z)-4-hexen-2-ol  B) (E)-4-hexen-2-ol  
C) (Z)-3-penten-1-ol  D) (E)-3-penten-1-ol

7. Which one of the following compounds has the molecular peak $M^+ = 58$ in the mass spectrum (atomic weight of C is 12, O 16, H 1) **and** the following $^{13}$C NMR spectrum:

![NMR Spectrum]

A) $\text{O}$  B) $\text{O}$  
C) $\text{C}$  D) $\text{CH}_2\text{CO}_2\text{H}$

8. Which **reagent** can be used for the reaction shown in the box?

![Reaction Diagram]

A) $t$-BuOK  B) $\text{CH}_3\text{Cl}$  C) $\text{CH}_2\text{I}_2$  D) $\text{CHCl}_3$

9. Which **reagent** can be used for the reaction shown in the box?

![Reaction Diagram]

A) $\text{O}$  B) $\text{Ph}_3\text{P}$  C) $t$-BuOK  D) $\text{Ph}_3\text{P}^+\text{C(CH}_3)_2^-$

10. Which of the following correctly describes the direction of **polarity** of the carbon-magnesium bond?

A) $\delta^+ \delta^+$  B) $\delta^- \delta^-$  
C) $\delta^+ \delta^-$  D) $\delta^- \delta^+$