QUESTION 1
Grignardsa

Give the structure that you would use with the provided Grignard reagent to give the provided product.

\[
\begin{align*}
\text{MgBr} & \quad \text{1. ???} \quad \text{2. } \text{H}_3\text{O}^+ \\
\text{A} & \quad \text{O} \\
\text{B} & \quad \text{O} \\
\text{C} & \quad \text{O} \\
\text{D} & \quad \text{O}
\end{align*}
\]

\[
\begin{align*}
\text{MgBr} & \quad \text{1. } \text{A} \quad \text{2. } \text{H}_3\text{O}^+ \\
\text{MgBr} & \quad \text{1. } \text{B} \quad \text{2. } \text{H}_3\text{O}^+ \\
\text{MgBr} & \quad \text{1. } \text{C} \quad \text{2. } \text{H}_3\text{O}^+ \\
\text{MgBr} & \quad \text{1. } \text{D} \quad \text{2. } \text{H}_3\text{O}^+
\end{align*}
\]
Give the product of the following reaction sequence with the starting material shown:

1. \( \text{Br}_2 / \text{hv} \)
2. Mg.THF
3. \( \text{OMgBr} \) (Excess Grignard)
4. \( \text{H}_3\text{O}^+ \)

A

B

C

D
QUESTION 3
Grignard

Give the structure that you would use with the provided Grignard reagent to give the provided product.

\[ 	ext{MgBr} \quad 1. \text{???} \quad 2. \text{H}_3\text{O}^+ \quad \text{OH} \]

A
B
C
D

A
B
C
D
QUESTION 4
Grignardsc

Give the Grignard reagent you would use to complete the following reaction:

\[
\begin{align*}
1. & \quad \text{O} \\
& \quad \text{1. } \quad \text{H}_3\text{O}^+ \\
\end{align*}
\]

\[
\begin{align*}
1. & \quad \text{O} \\
& \quad \text{1. H}_3\text{O}^+ \\
\end{align*}
\]

new C-C bonds are indicated in **BOLD**
QUESTION 5
Grignardsd

Give the Grignard reagent you would use to complete the following reaction:

\[ ??? \xrightarrow{1. \text{H}_2\text{O}^+} \xrightarrow{2. \text{H}_3\text{O}^+} \]

new C-C bonds are indicated in **BOLD**
How many of the carbon-carbon bonds in the following structure could have been made in a Grignard reaction with either a carbonyl compound (C=O) or an epoxide?

- A 2 bonds
- B 3 bonds
- C 4 bonds
- D 5 bonds
QUESTION 7
MC29c

Give the product of the following reaction sequence with the starting material shown, (hint, be careful with step #5, remember that Grignards are strong Bronsted bases!)

1. LiAlH₄
2. H₃O⁺
3. PBr₃
4. Mg.THF
5. H₃O⁺

A \xrightarrow{\text{LiAlH₄}} \xrightarrow{\text{O⁻⁺Li}} \xrightarrow{\text{H₃O⁺}} \xrightarrow{\text{PBr₃}} B = C

D
QUESTION 8
MC29b

Give the product of the following reaction sequence with the starting material shown (hint, be careful at step #3, remember that a Grignard reagent will also be a strong Bronsted base!)

1. Excess LiAlH₄
2. H₂O⁺
3. Excess MeMgBr
4. H₂O⁺
5. Na₂Cr₂O₇/H₂SO₄/H₂O

[Diagram showing the reaction steps and products A, B, C, and D]