

## Organic Chemistry Part 2

### CHAPTER 1

#### Grignard Reagents and Organometallic Compounds

1.1–1.4

DPP 1.1 Grignard Reagents and Organometallic Compounds 1.1

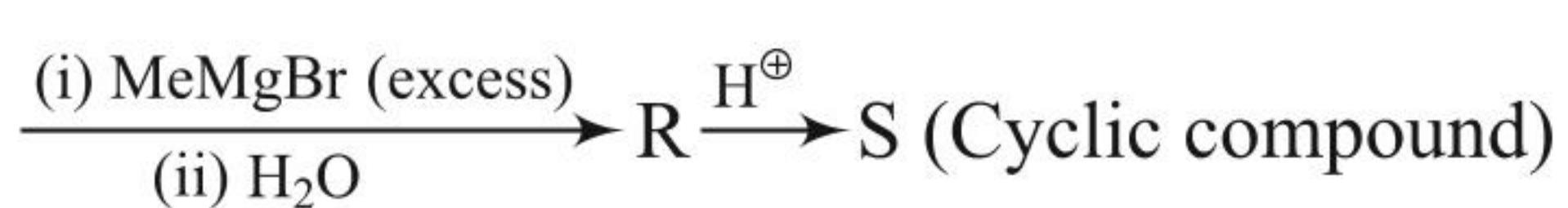
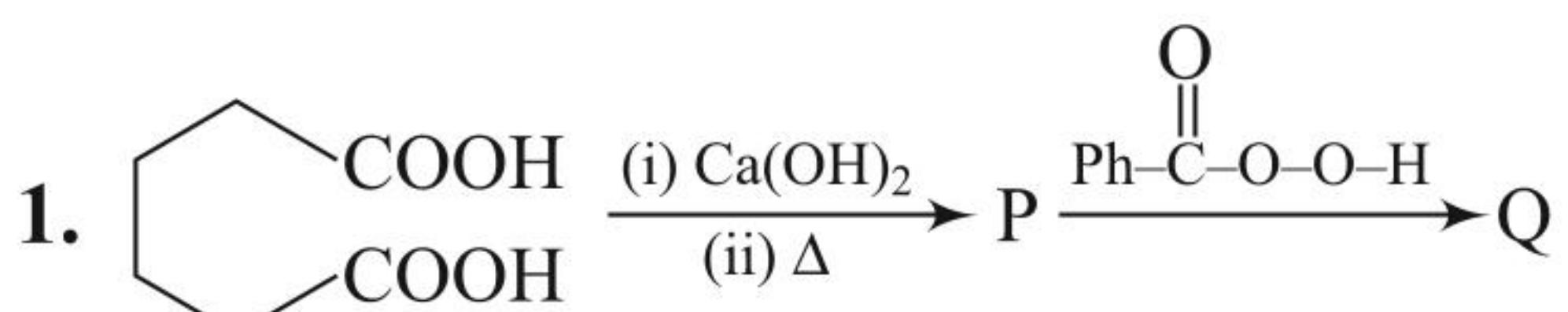
CHAPTER  
**1**

# Grignard Reagents and Organometallic Compounds

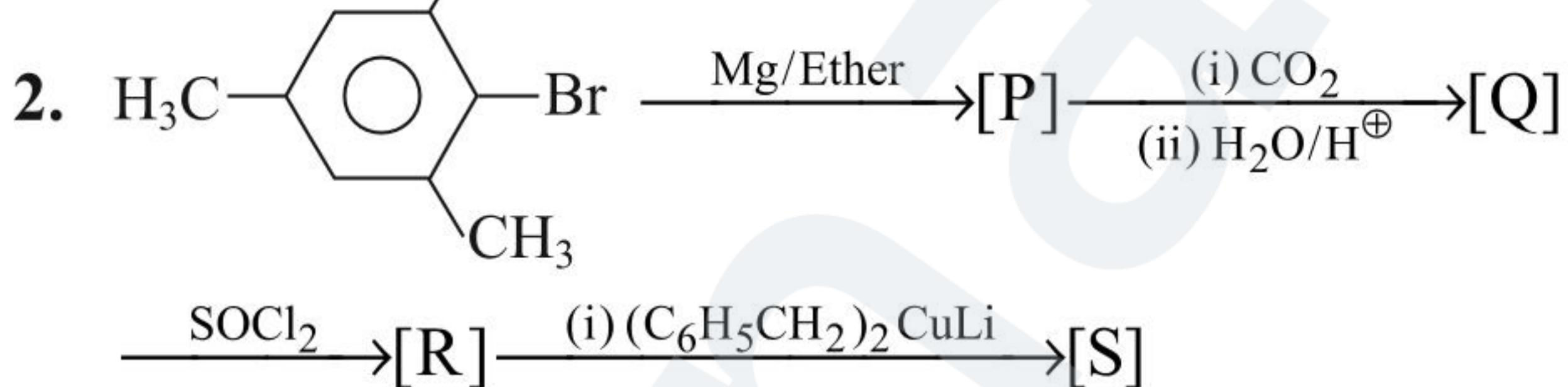
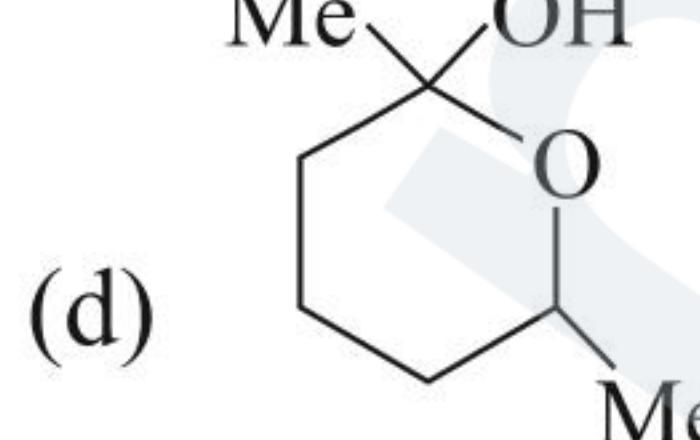
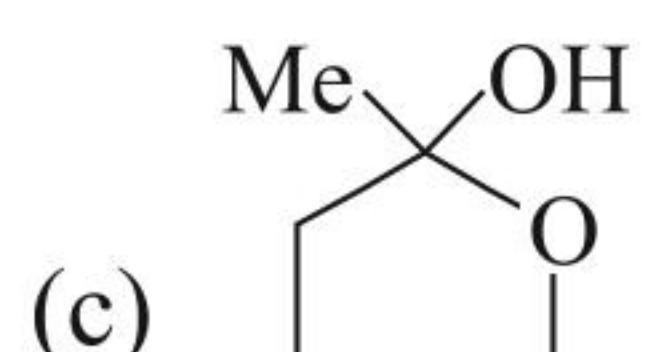
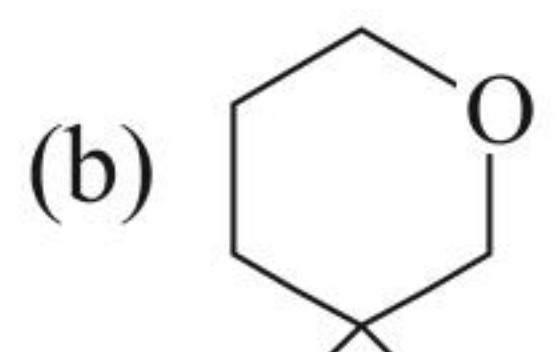
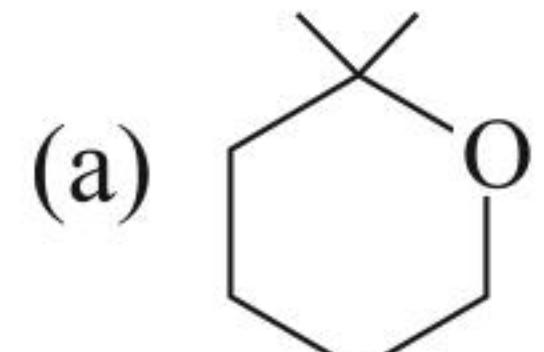
## DPP 1.1

### Grignard Reagents and Organometallic Compounds

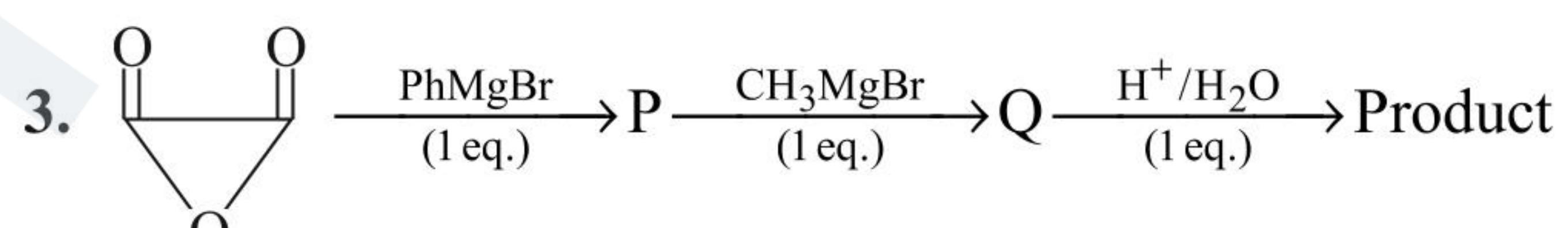
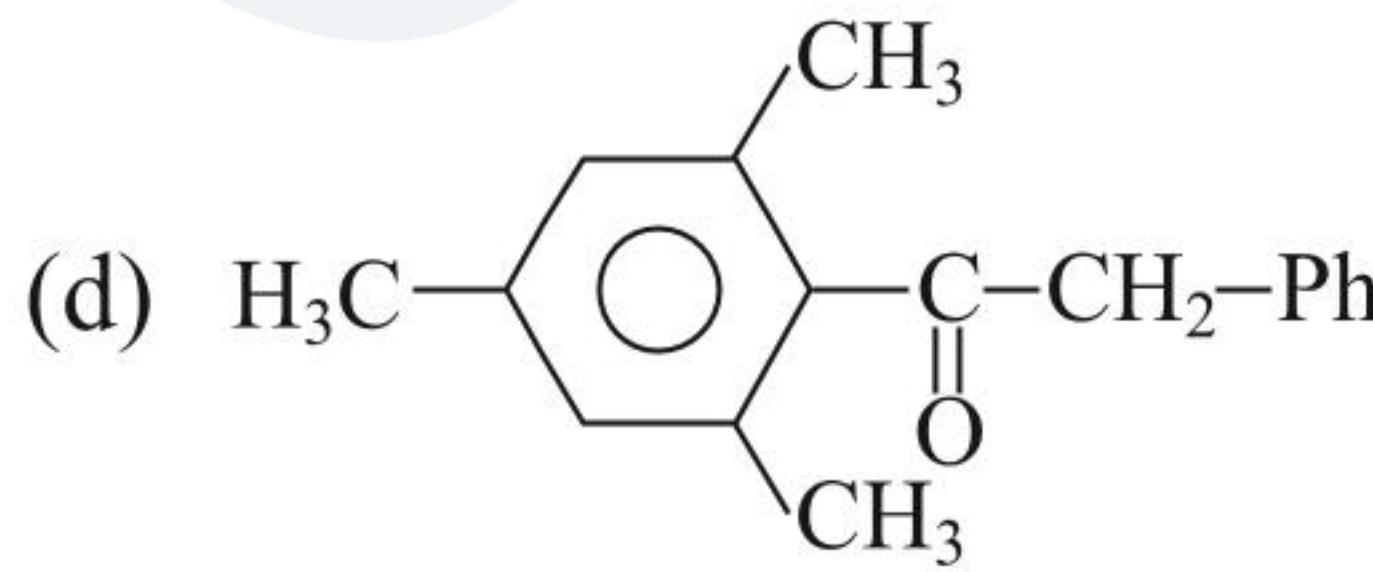
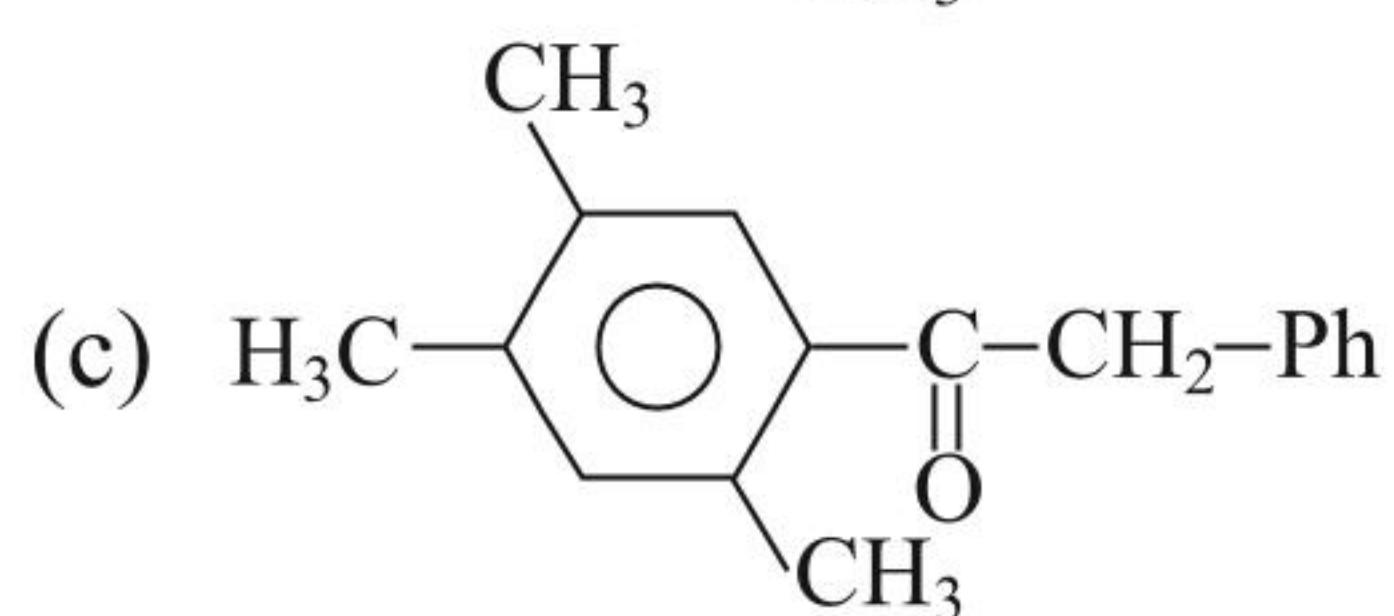
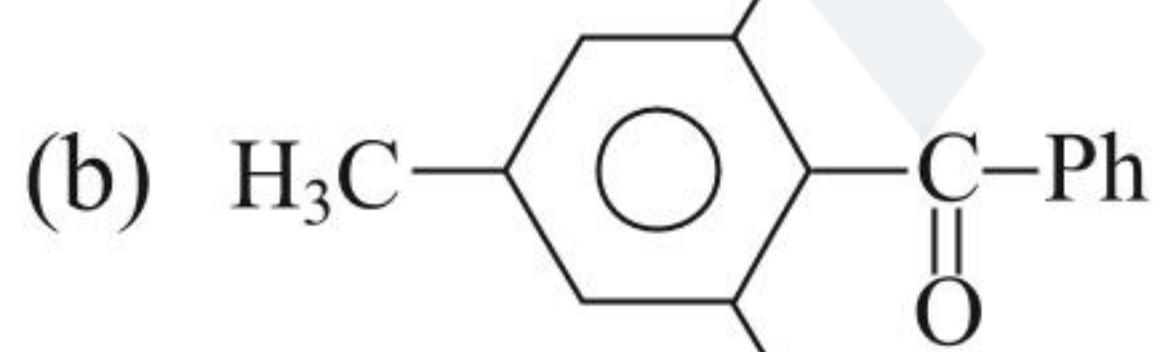
#### Single Correct Answer Type



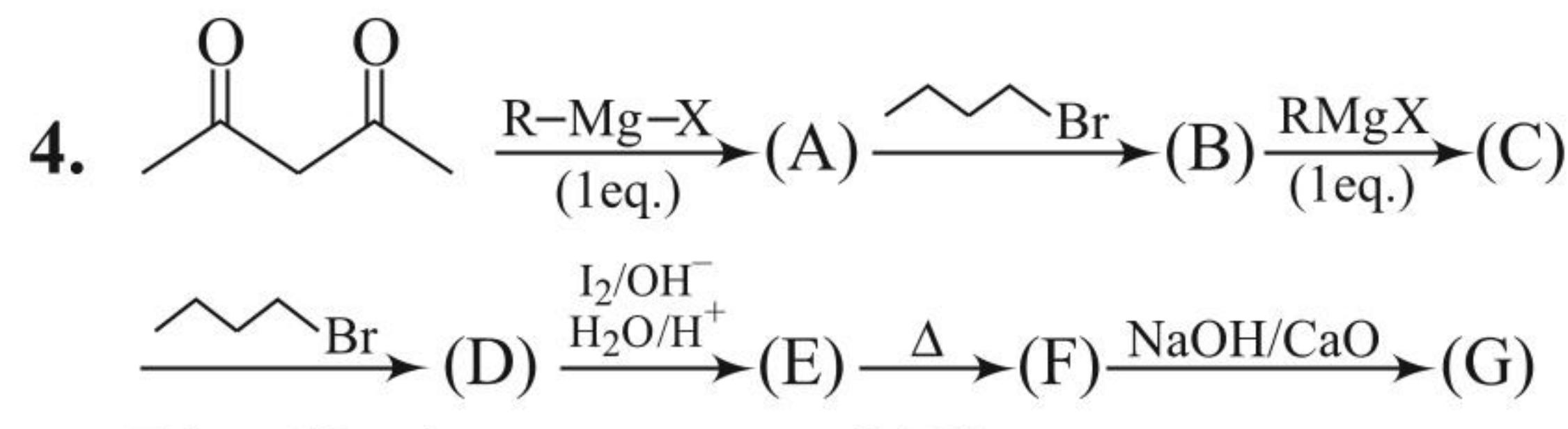
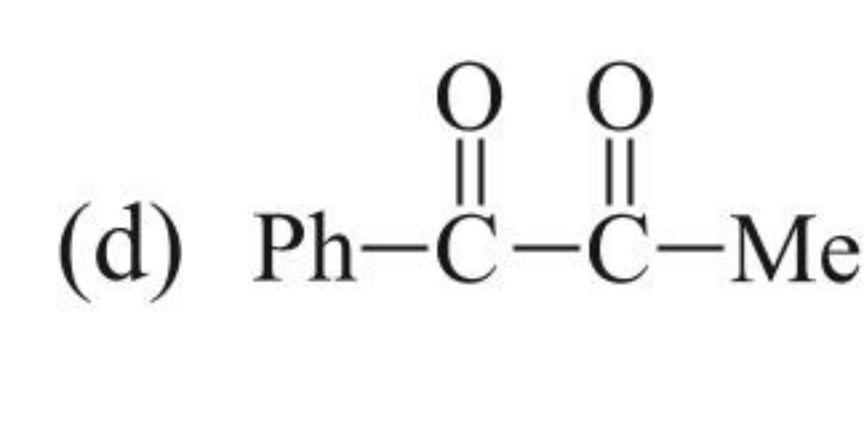
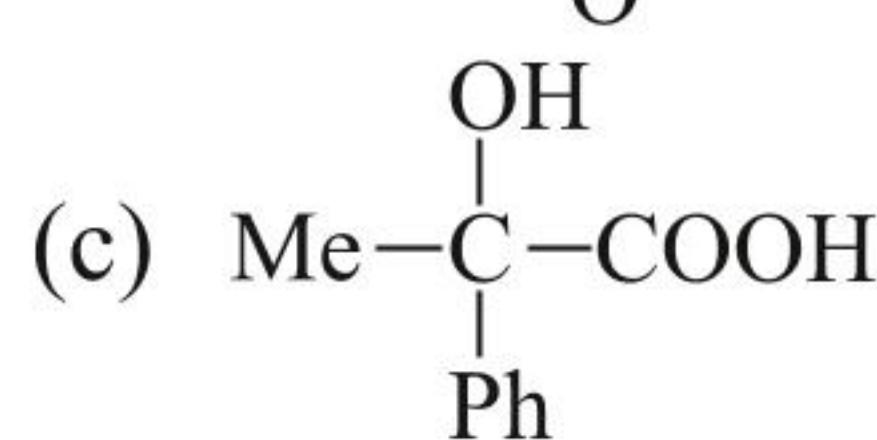
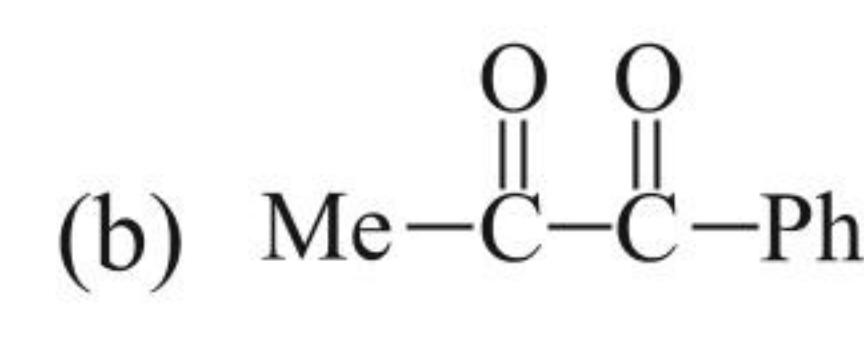
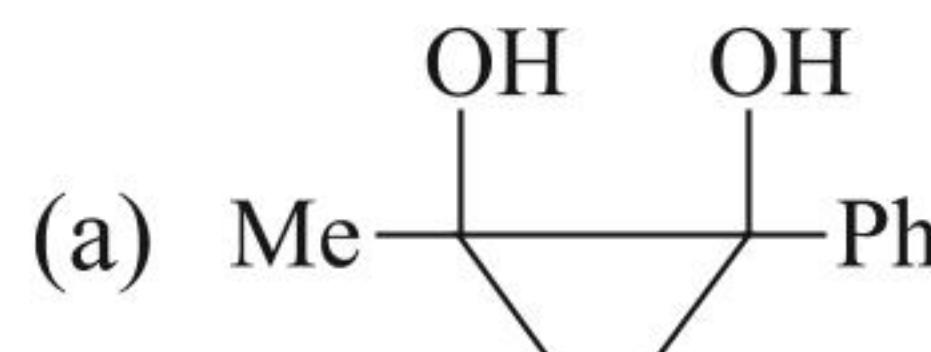
The cyclic compound S is



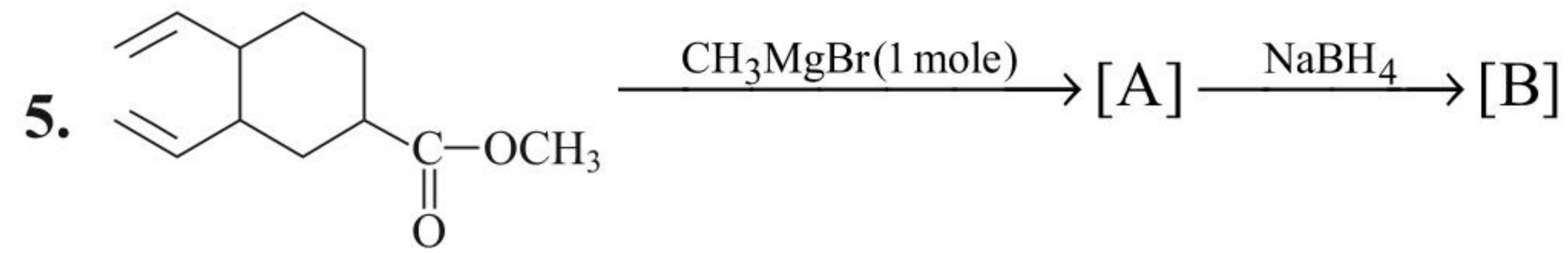
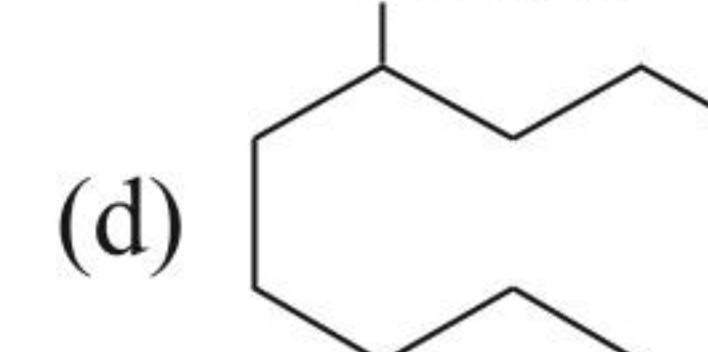
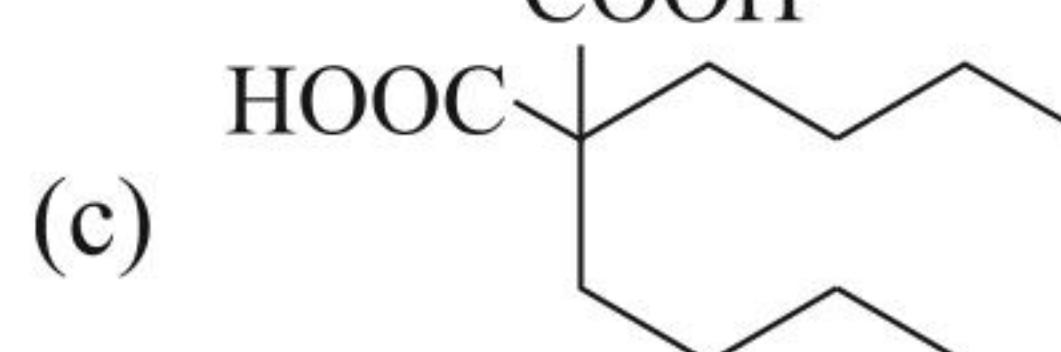
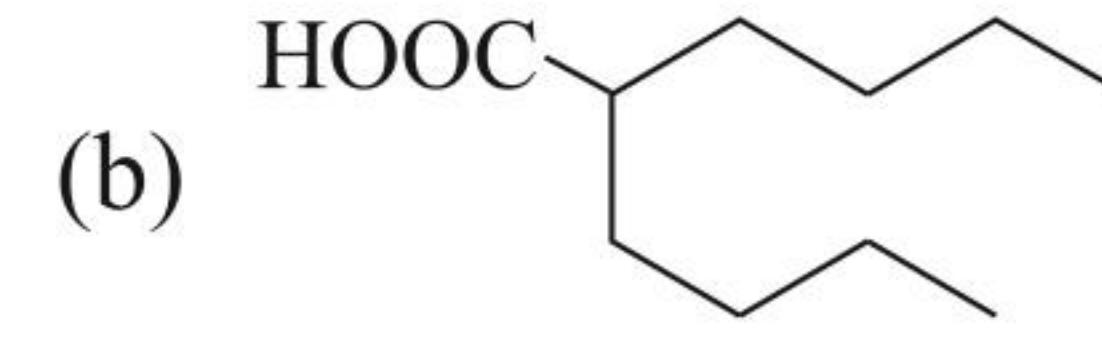
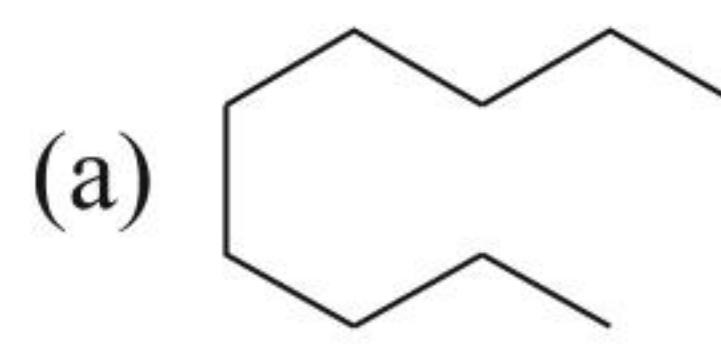
Identify (S) in the following sequence of reaction.



The product formed in the reaction is



Identify the structure of 'G'.



Identify the structure of [B] in the following sequence of reactions.



Which is/are correct?



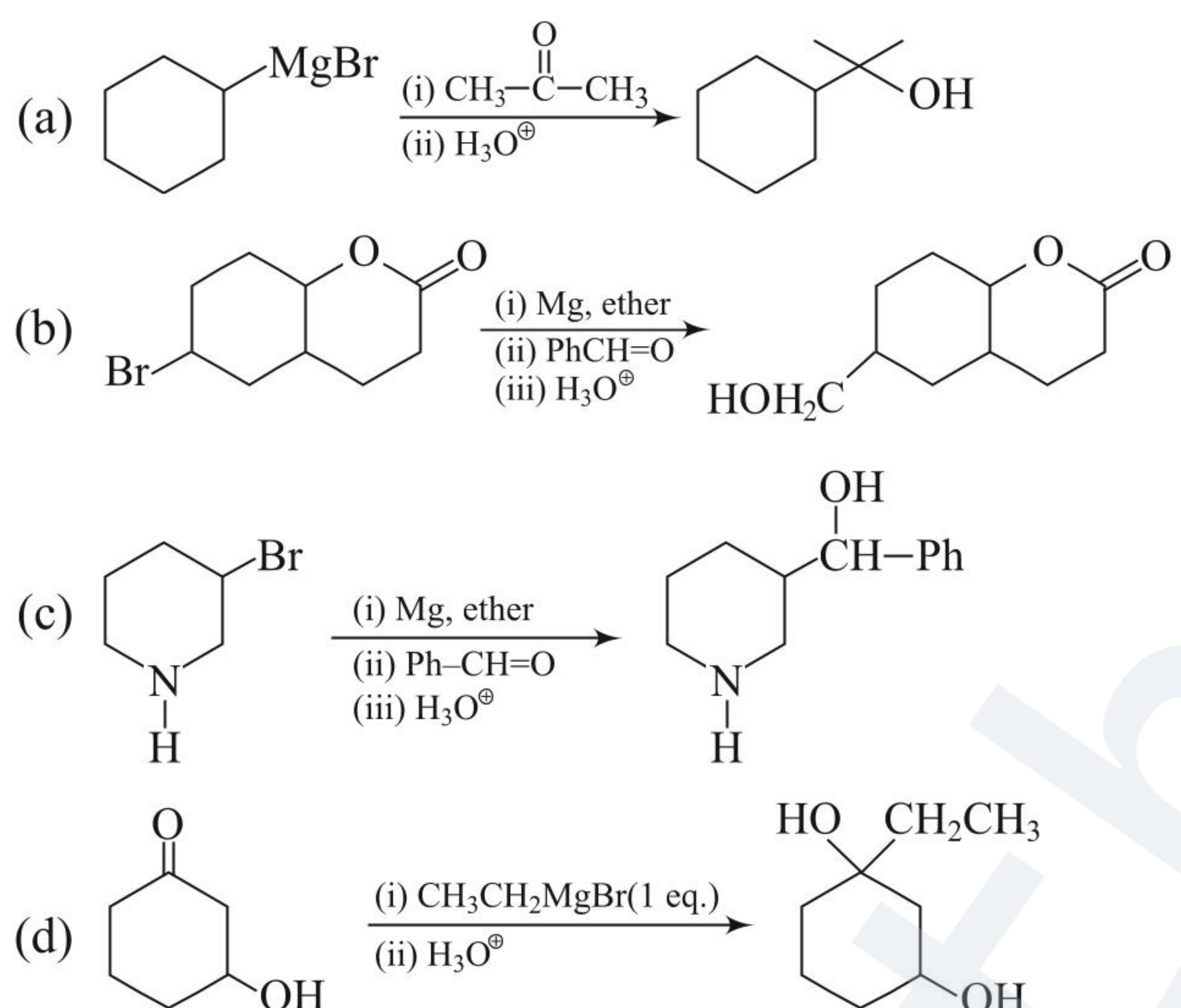
16. Which of the following compounds formed by the reaction of sec-butylmagnesium iodide with a terminal alkyne?



17. *n*-Propyl alcohol is obtained on hydrolysis of the adduct obtained by the reaction of

- (a) EtMgX and HCHO      (b) MeMgX and CH<sub>3</sub>CHO  
(c) EtMgX and O<sub>2</sub>      (d) MeMgX and (CH<sub>2</sub>)<sub>2</sub>O

18. Which of the following is/are the incorrect Grignard reaction?



19. Which of the following statement(s) is (are) true?

- (a) Sodium forms ionic organometallic compounds.
  - (b) Sodium does not form any organometallic compound.
  - (c) Mercury forms ionic organomercury compounds
  - (d) Mercury forms covalent organomercury compounds.

20. Solvent used during preparation of organolithium compounds should be completely dry because

- (a) lithium forms insoluble hydroxide
  - (b) the organolithium compound formed will react with water
  - (c) the solvent is protonated and thus becomes inactive
  - (d) solvent is insoluble in water

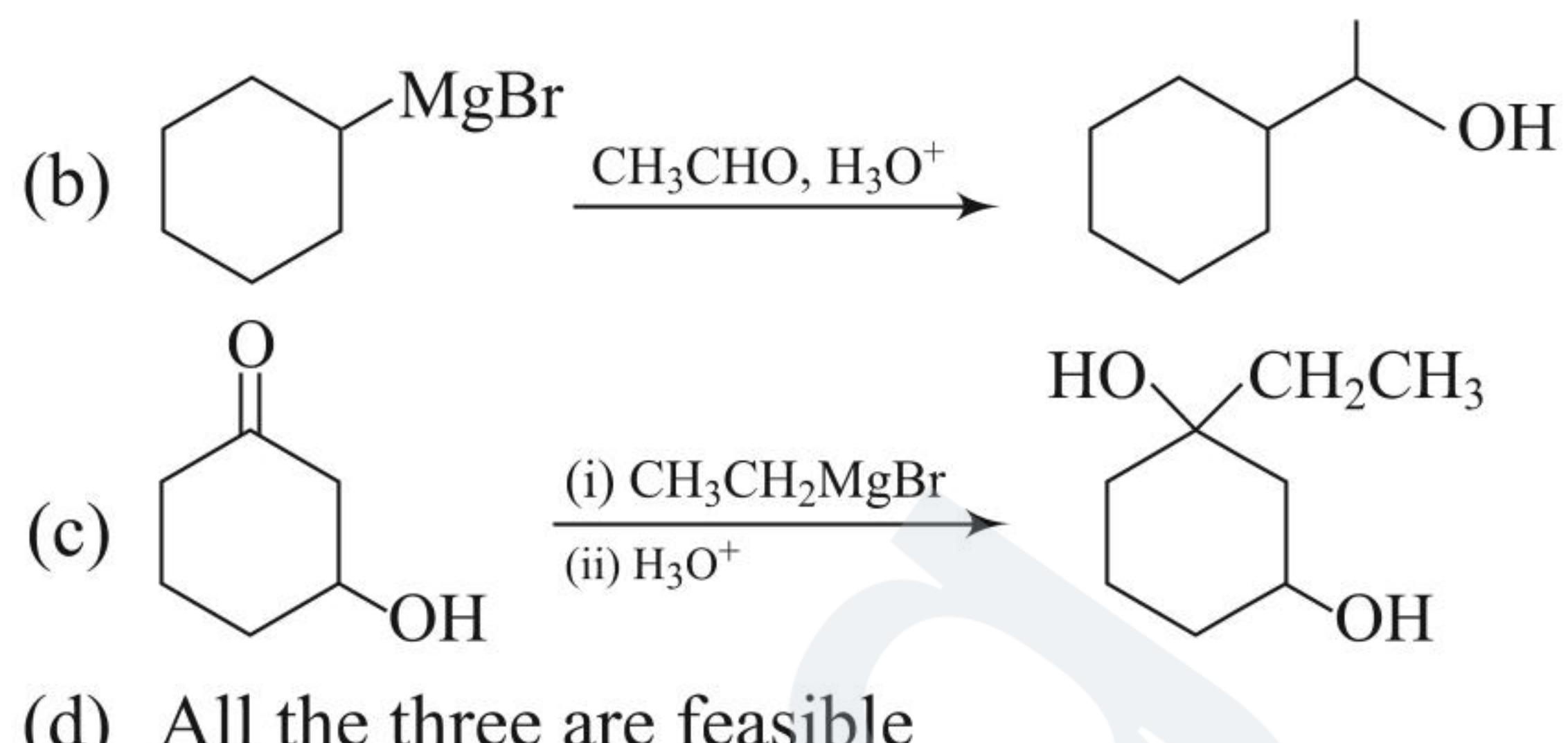
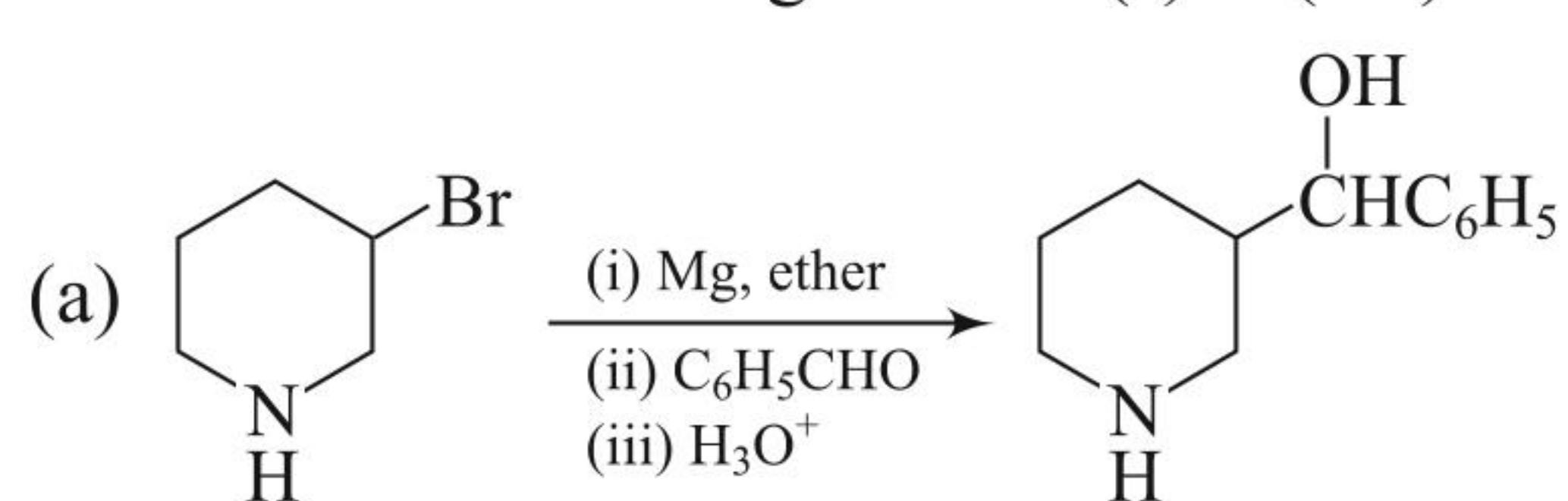
(d) solvent is miscible in water.

21. Which of the following statement(s) is/are true?

- Which of the following statement(s) is/are true?

  - (a) Methylmagnesium iodide is a powerful Bronsted base.
  - (b) Methylmagnesium iodide is a powerful Lewis base.
  - (c) Methylmagnesium bromide is a powerful nucleophile.
  - (d) Methylmagnesium bromide is a weak nucleophile.

22. Which of the following reaction(s) is (are) not feasible?



# Matching Column Type

**23.** Match the items given in column I with those in column II.

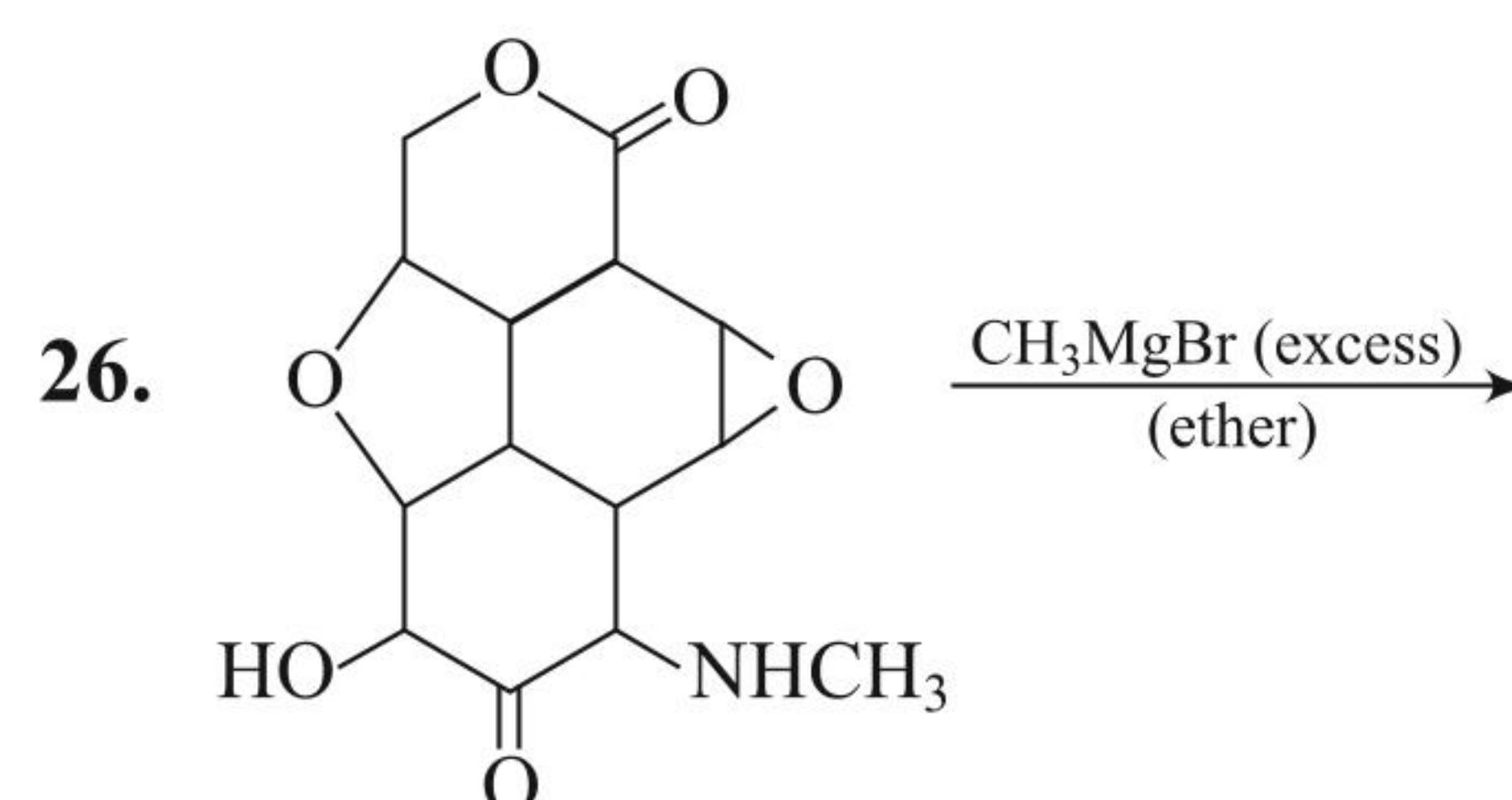
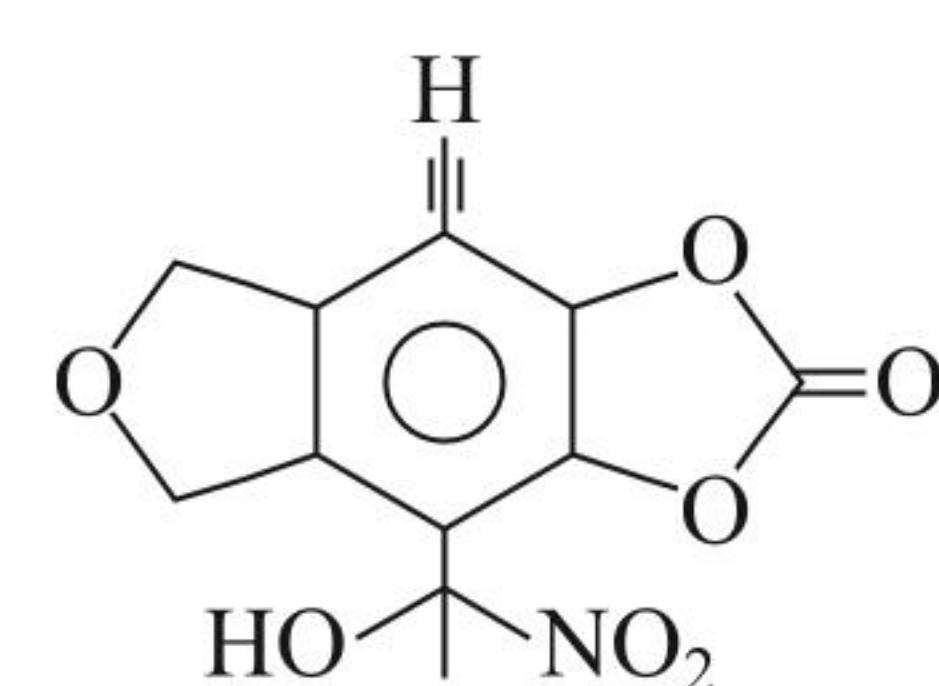
	<b>Column I</b>		<b>Column II</b>
a.	$\text{RMgI} + \text{Acetonitrile } (\text{CH}_3\text{C}\equiv\text{N})$	p.	Alkanone
b.	$\text{RMgI} + \text{Carbon disulphide}$	q.	Ester
c.	$\text{RMgI} \cdot (1 \text{ eq}) + \text{Ethyl chloroformate}$	r.	$1^\circ \text{ Alcohol}$
d.	$\text{RMgI} + \text{Oxirane}$	s.	Dithionic acid

**24.** Match the items given in column I with those in column II.

	<b>Column I</b>		<b>Column II</b>
a.	$\text{CH}_3\text{MgBr} + \text{epoxide}$	p.	Zerewitinoff estimation
b.	$\text{C}_6\text{H}_{11}\text{MgCl} + \text{CH}_2\text{O}$	q.	$2^\circ$ alcohols
c.	Solvent in preparing $\text{RMgX}$	r.	Pentane
d.	$n\text{-C}_5\text{H}_{11}\text{MgBr} + \text{NH}_3$	s.	$1^\circ$ alcohols

# Numerical Value Type

**25.** Calculate the number of molecules of Grignard reagent consumed by 1 molecule of following compound.



Find the number of  $\text{CH}_3\text{MgBr}$  molecules used by the given reactant, to react completely.

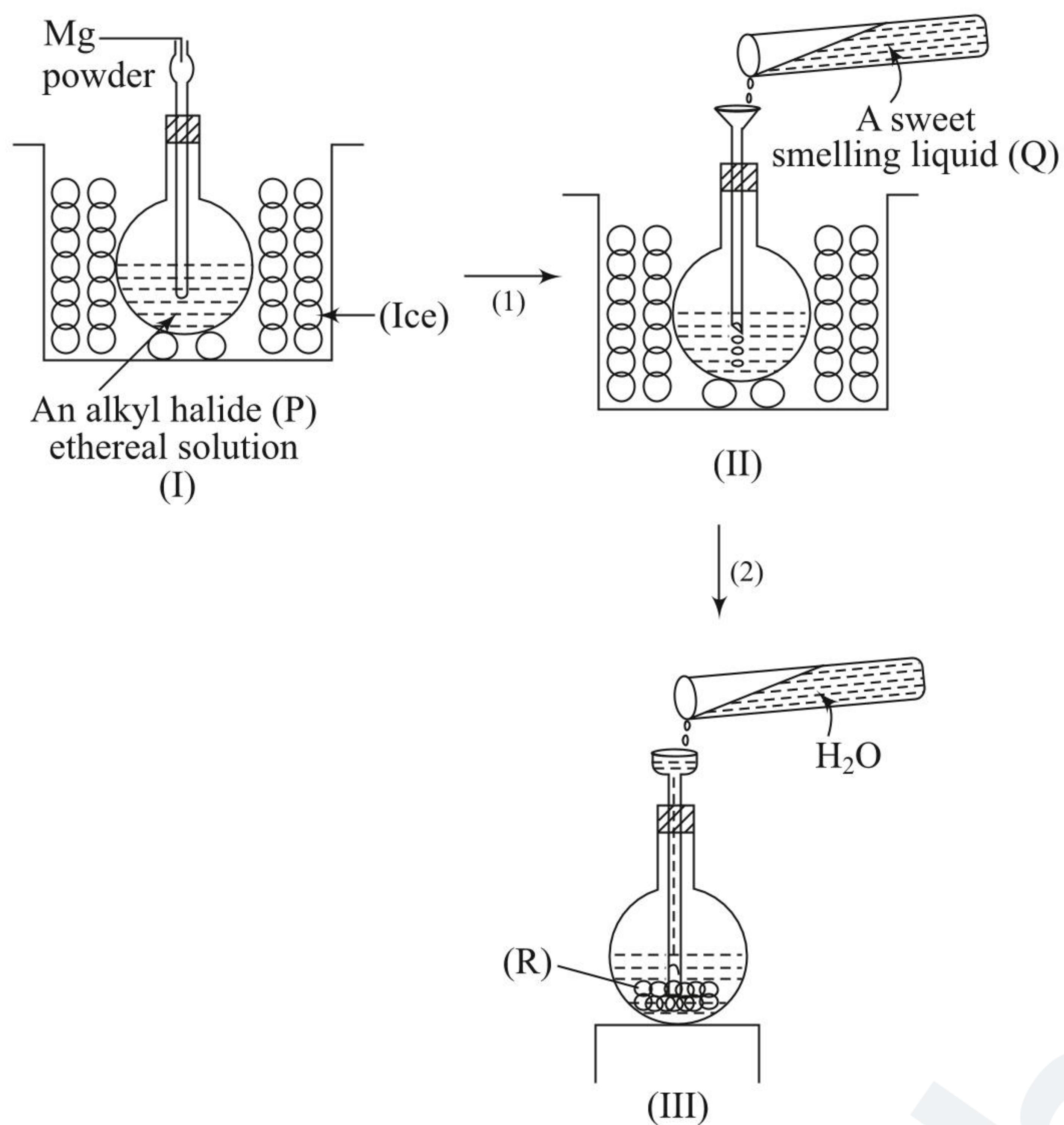
**27.** How many total possible Grignard reagent can give 3-methylpentane on treatment with  $\text{H}^+$ ?

## 1.4 Organic Chemistry

### Linked Comprehension Type

For questions 28-30

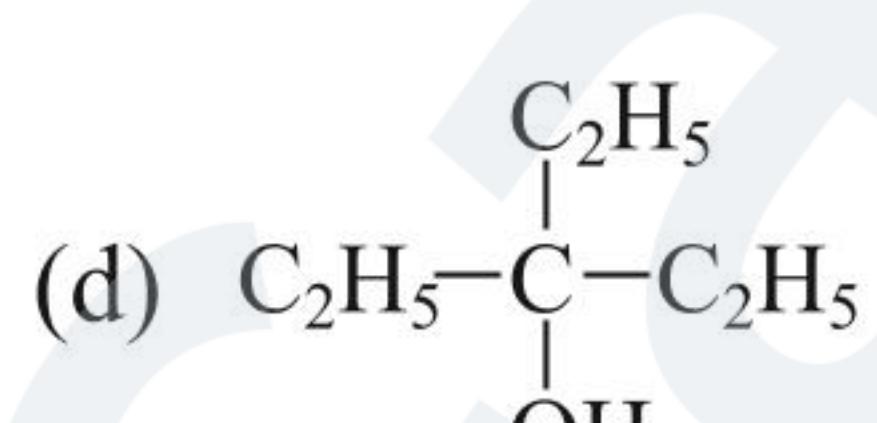
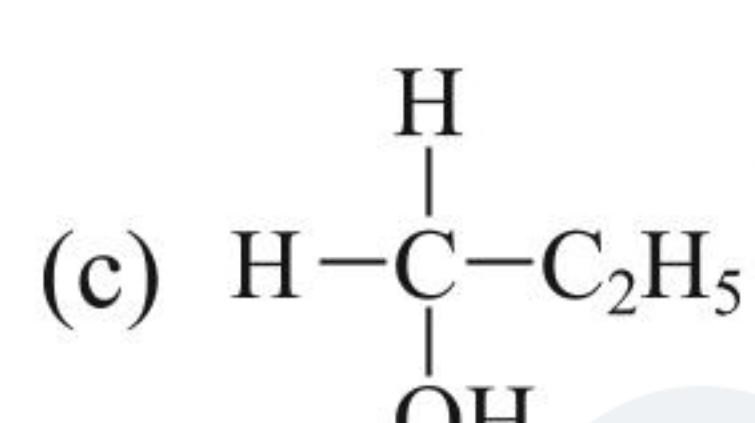
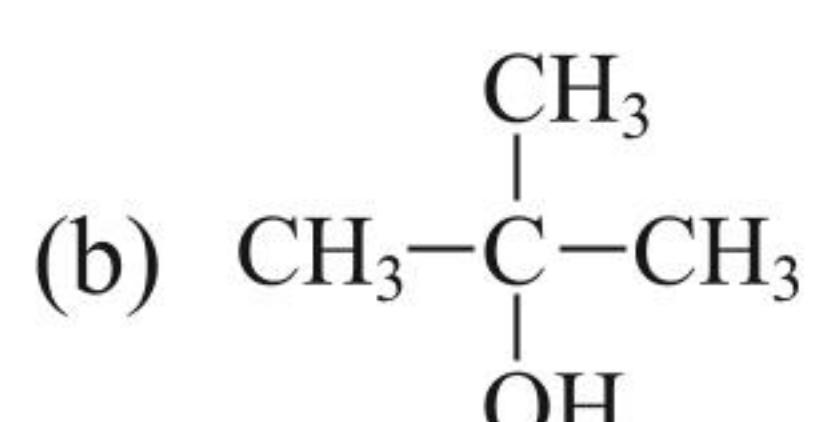
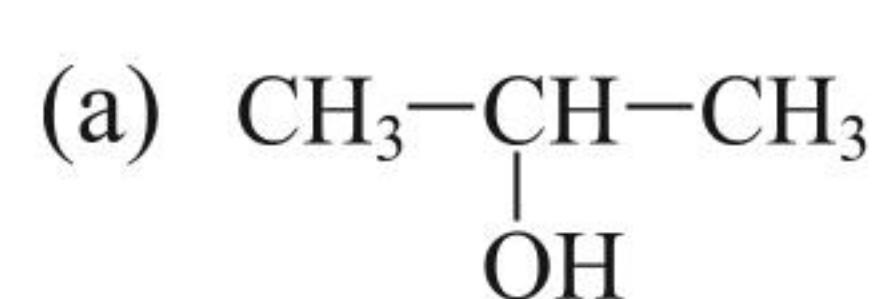
Observe the following experiment



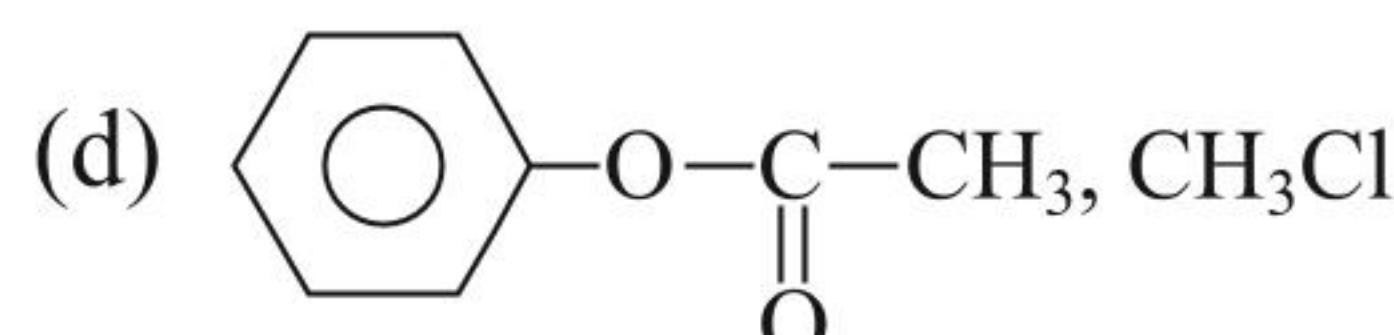
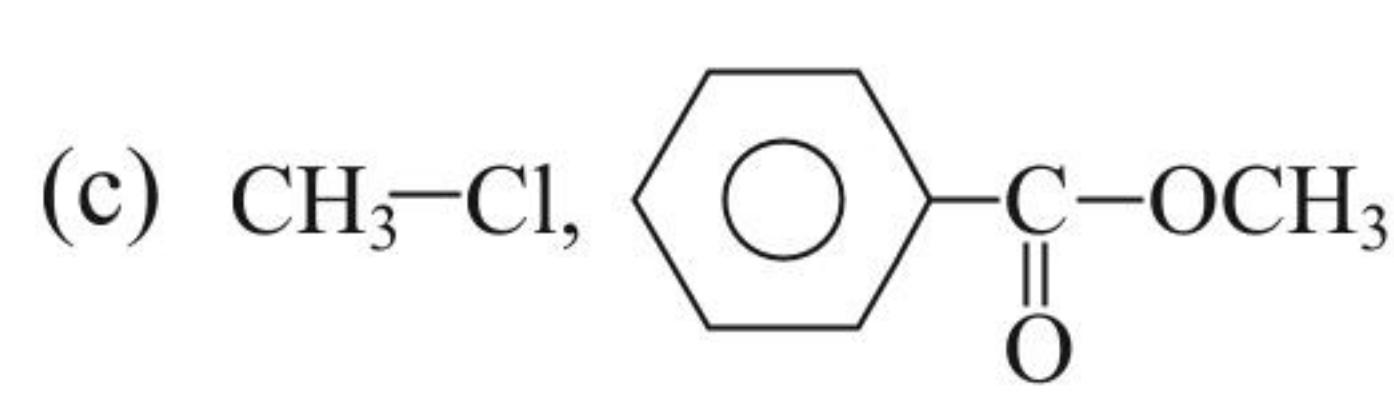
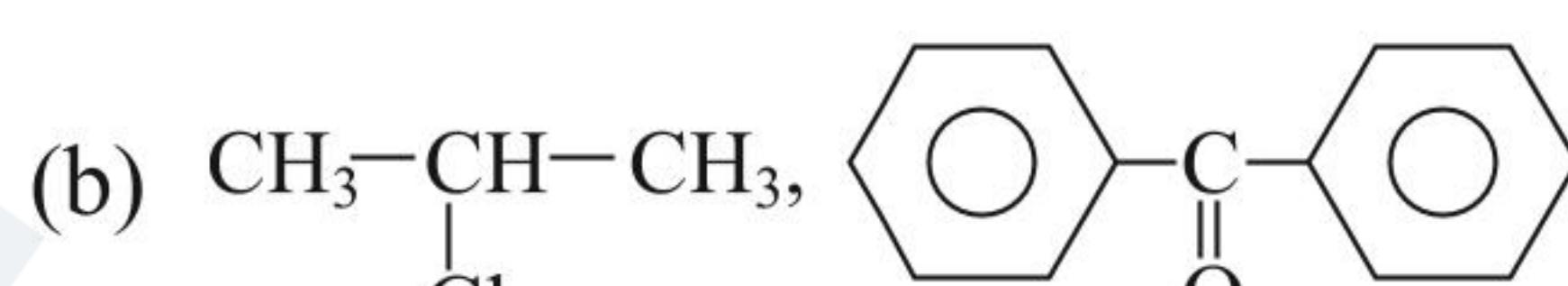
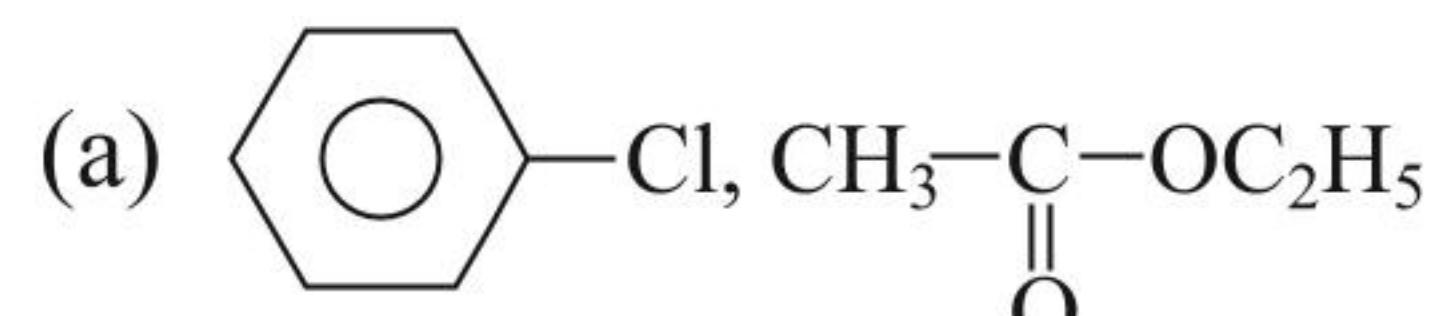
28. If the reactant 'P' is ethyl chloride, then the product R can be

- (a)  $\text{CH}_3-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_3$
- (b)  $\text{CH}_3\text{CH}_2-\text{O}-\text{CH}_2\text{CH}_3$
- (c)  $\text{CH}_3-\overset{\text{CH}_2\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_2-\text{CH}_3$
- (d)  $\text{CH}_3\text{CH}_2-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_3$

29. If the liquid Q is  $\text{H}-\overset{\parallel}{\underset{\text{O}}{\text{C}}}-\text{OC}_2\text{H}_5$ , then the product R can be (P can be any other halide)



30. If R is



### ANSWER KEY

#### Single Correct Answer Type

- |         |         |         |         |         |
|---------|---------|---------|---------|---------|
| 1. (a)  | 2. (d)  | 3. (c)  | 4. (a)  | 5. (a)  |
| 6. (c)  | 7. (c)  | 8. (b)  | 9. (d)  | 10. (b) |
| 11. (d) | 12. (c) | 13. (b) | 14. (c) |         |

#### Multiple Correct Answers Type

- |               |            |            |               |
|---------------|------------|------------|---------------|
| 15. (a, c, d) | 16. (a, d) | 17. (a, d) | 18. (b, c, d) |
| 19. (a, d)    | 20. (a, b) | 21. (a, c) | 22. (a, c, d) |

#### Matching Column Type

- |  |
|--|
| 23. (a → p), (b → s), (c → q), (d → r)       |
| 24. (a → q, s), (b → s), (c → r), (d → p, r) |

#### Numerical Value Type

- |         |         |         |
|---------|---------|---------|
| 25. (6) | 26. (7) | 27. (8) |
|---------|---------|---------|

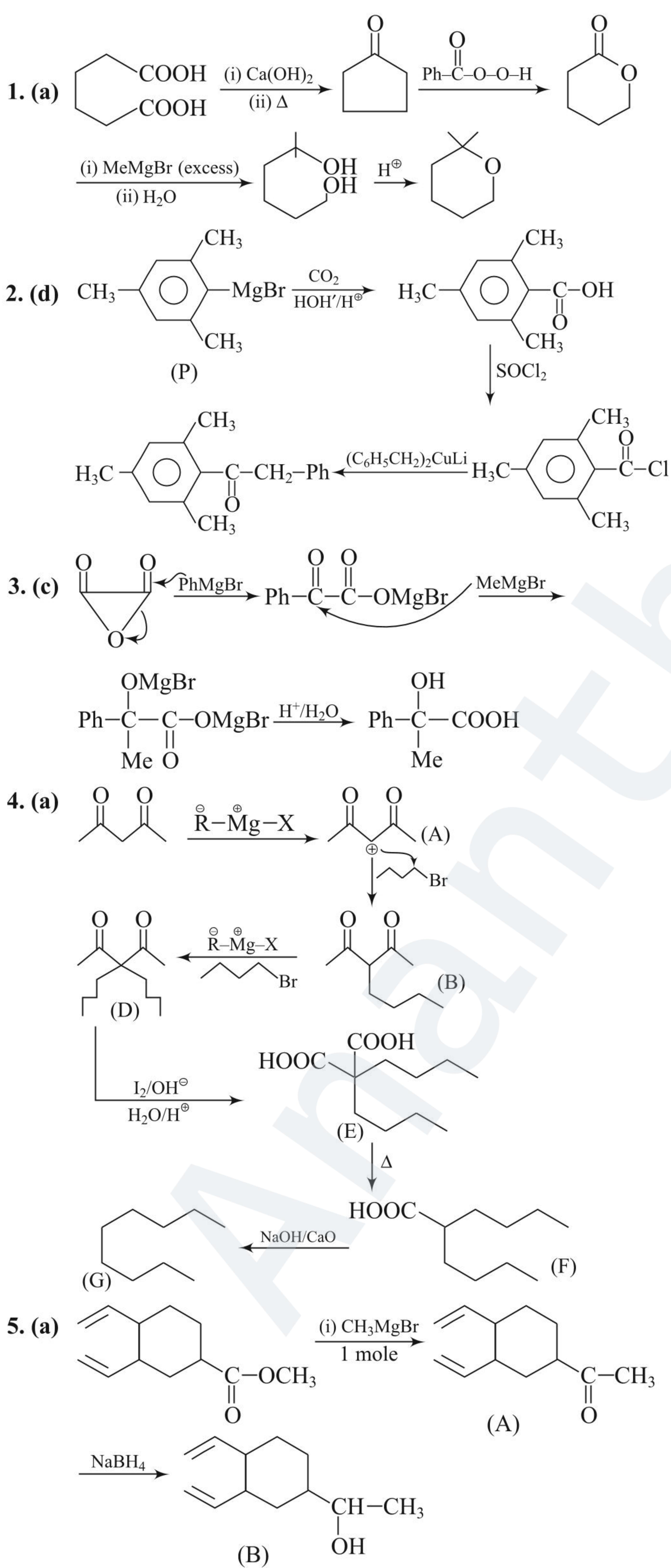
#### Linked Comprehension Type

- |         |         |         |
|---------|---------|---------|
| 28. (c) | 29. (a) | 30. (b) |
|---------|---------|---------|

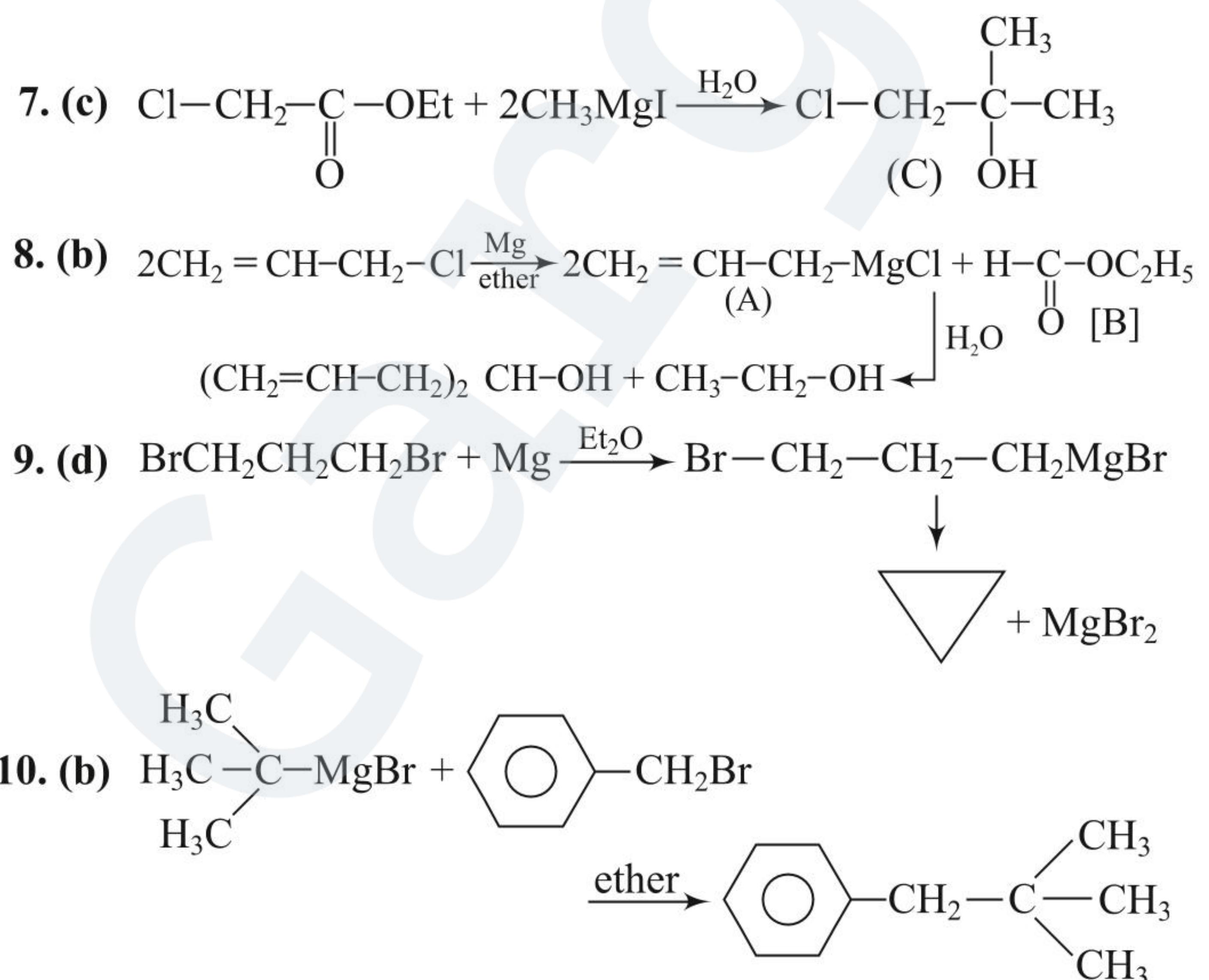
# CHAPTER 1

## DPP 1.1

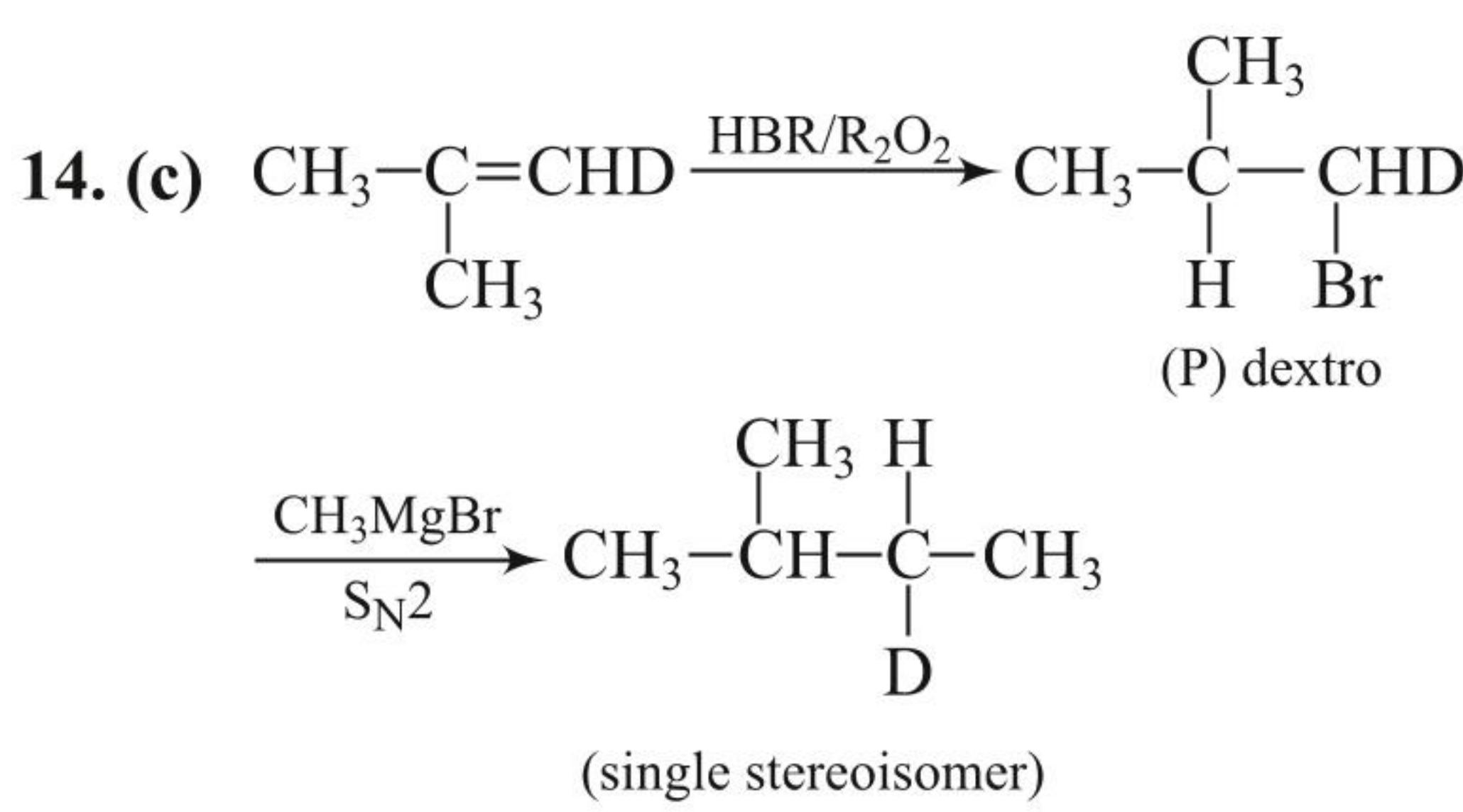
### Single Correct Answer Type



6. (c) Organomagnesium and organolithium compound cannot be prepared from the alkyl (or aryl) halide having  $-NO_2$  group. On the other hand, organocopper and organocadmium compounds, do not react with the  $-NO_2$  group.

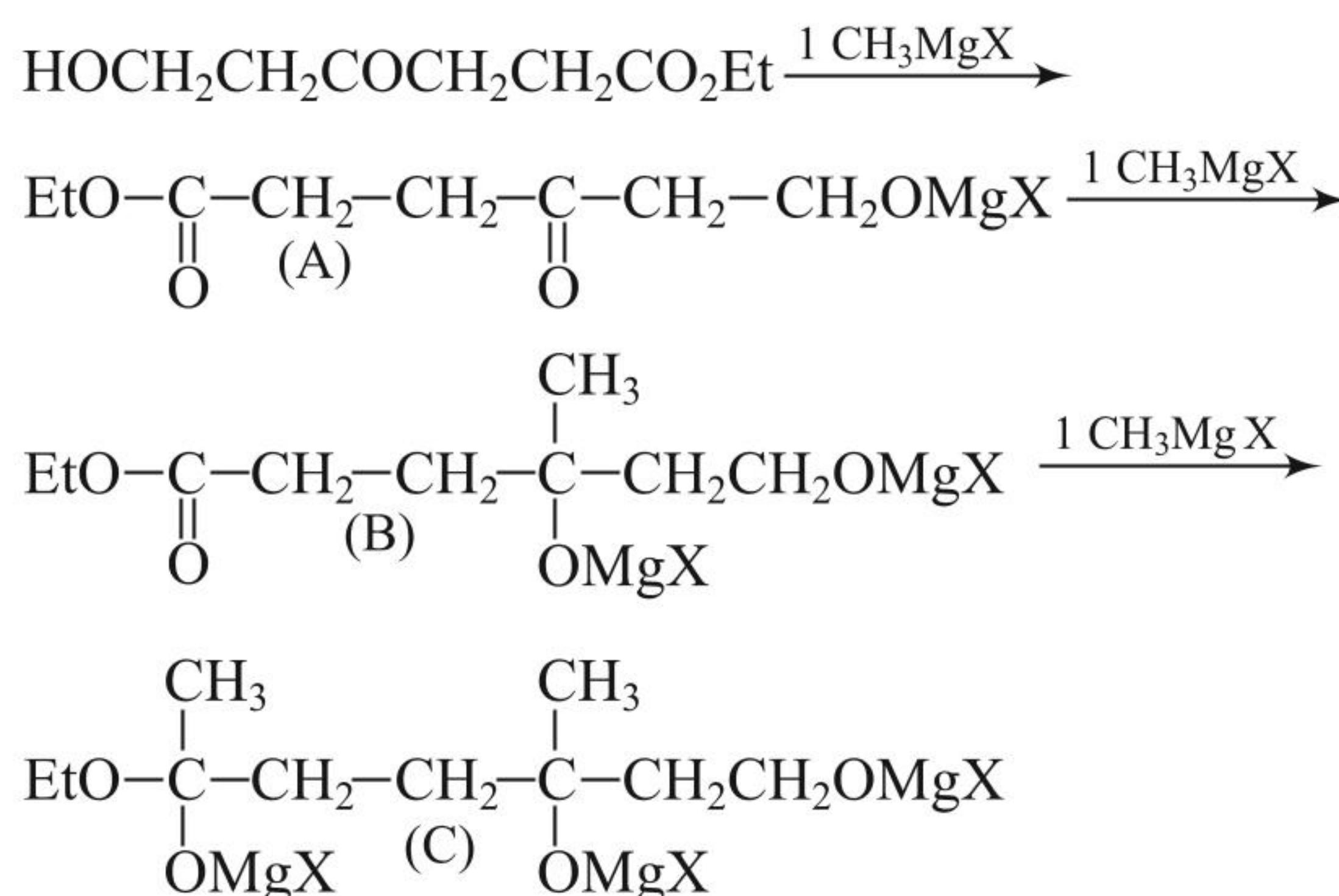


11. (d) Only methyl lithium has C – M bond.
12. (c) Grignard reagents are strongly basic in character due to carbanionic nature, hence it will react with water, a weak acid.
13. (b) Tertiary alcohols are formed by treating Grignard reagents either with ketones or excess of an ester other than formate which will give 2° alcohol.

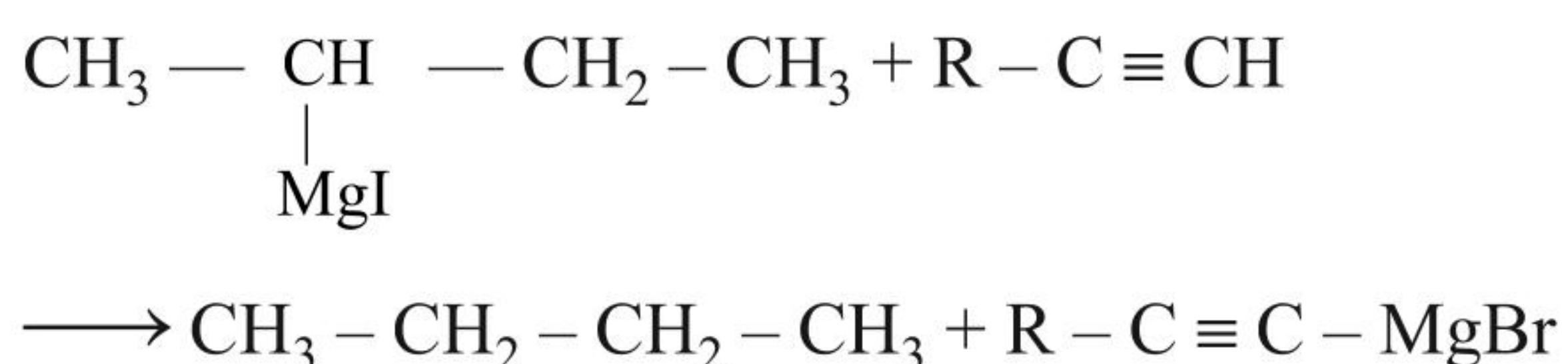


### Multiple Correct Answers Type

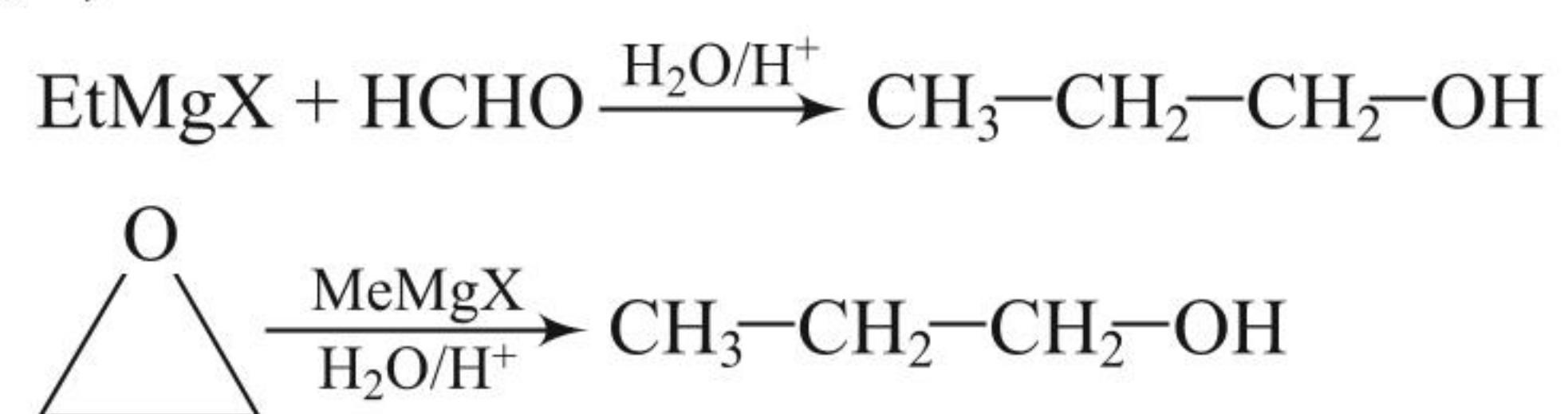
15. (a, c, d)



16. (a, d)



17. (a, d)



18. (b, c, d)

19. (a, d)

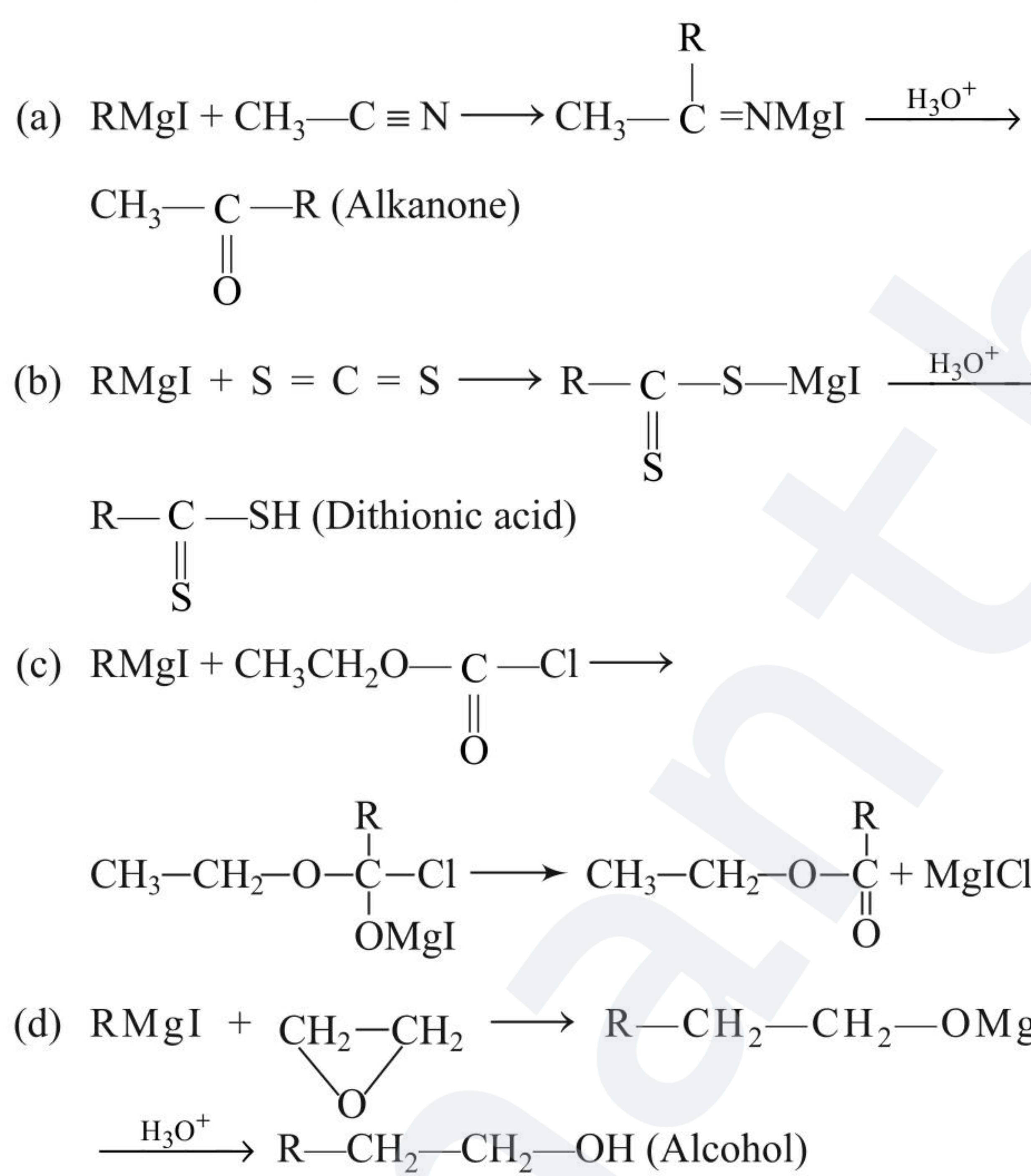
20. (a, b)

21. (a, c)

22. (a, c, d)

**Matching Column Type**

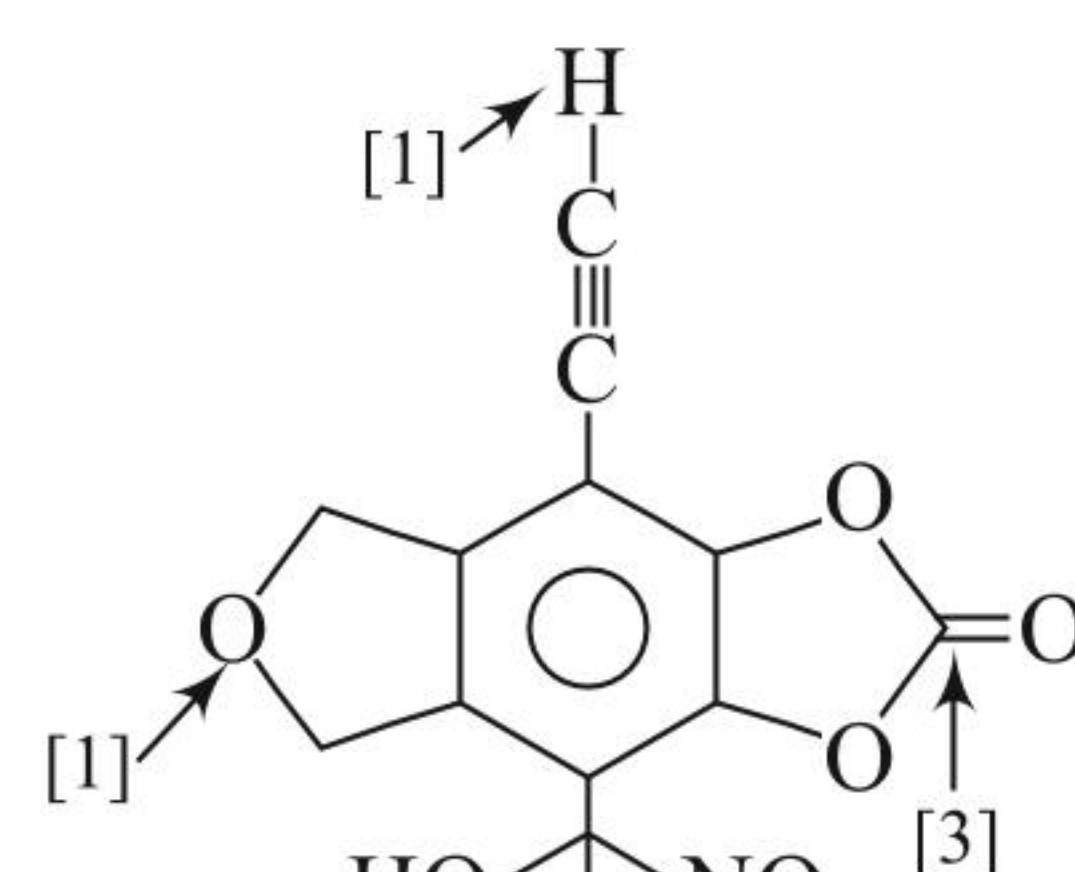
23. (a → p), (b → s), (c → q), (d → r)



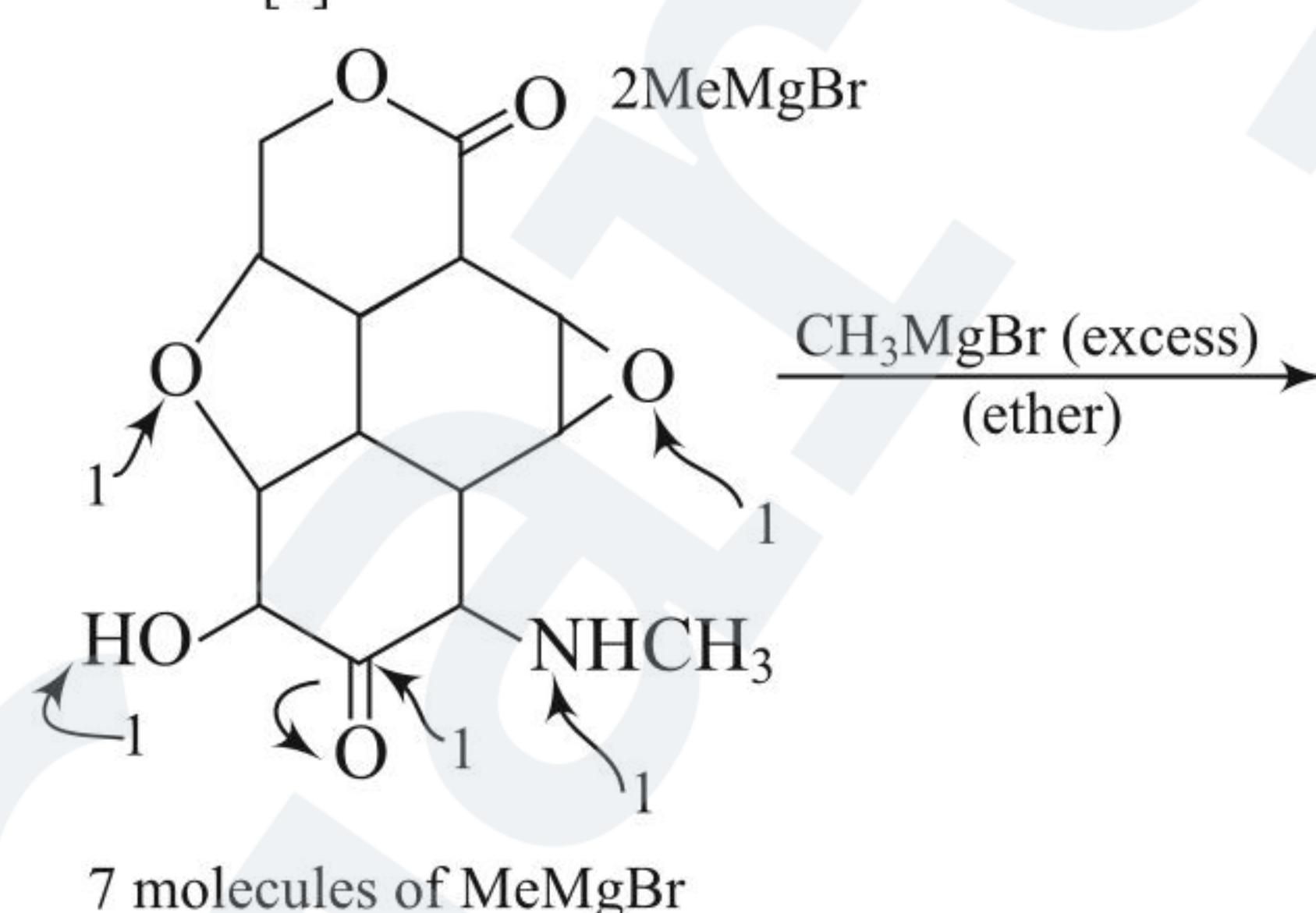
24. (a → q, s), (b → s), (c → r), (d → p, r)

**Numerical Value Type**

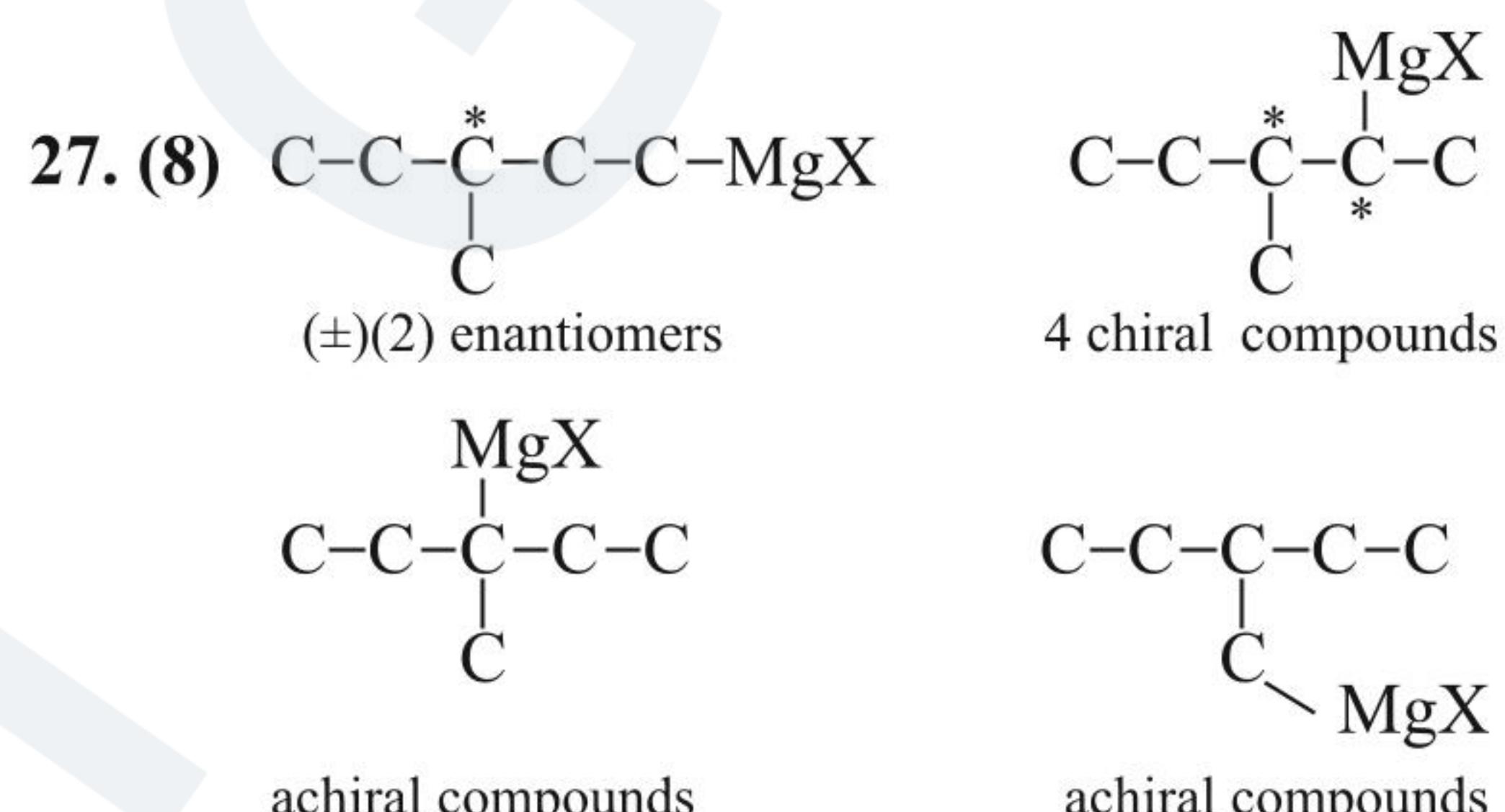
25. (6)



26. (7)



27. (8)

**Linked Comprehension Type**