

ORGANIC (FINAL EXAM)

Question 3
Not yet answered
Marked out of 1.00
Flag question

Time left 0:48:16

Quiz navigation

What is the number of configurational stereoisomers possible for each of the following molecules?

C[C@H]1[C@@H](O)CC1 I C[C@H]1[C@@H](O)CC1 II

a. I has 2 stereoisomers; II has 0

b. I has 4 stereoisomers; II has 0

c. I has 2 stereoisomers; II has 2

d. I has 3 stereoisomers; II has 4

e. I has 4 stereoisomers; II has 2

Clear my choice

Next page

1.

Question 4
Not yet answered
Marked out of 1.00
Flag question

Time left 0:45:34

Quiz navigation

What is the major product of the following reaction?

CC1(C)CC1 + OH- >> ?

A. CC1(C)CC1

B. CC1(C)CC1 and CC1(C)CC1

C. CC1(C)CC1 and CC1(C)CC1

D. CC1(C)CC1 and CC1(C)CC1

E. CC1(C)CC1 and CC1(C)CC1

Clear my choice

2.

Question 7
Not yet answered
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Time left 0:36:45

Quiz navigation

Which carbonyl compound reacts fastest with nucleophiles?

a. 2,2-dimethylbutanal

b. cyclopentanone

c. 2,4,6-trimethylbenzaldehyde

d. acetone

e. 2,2-dichloropropanal

Clear my choice

Next page

3.

Question 14
Not yet answered
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Flag question

What is the correct name of the following molecule ?

$$\begin{array}{c}
 \text{Br} \\
 | \\
 \text{H} - \text{C} - \text{CH}_3 \\
 | \\
 \text{H}_3\text{C} - \text{C} - \text{Cl} \\
 | \\
 \text{H}
 \end{array}$$

a. (2R,3R)-2-bromo-3-chlorobutane
 b. (2S,3R)-2-bromo-3-chlorobutane
 c. (2S,3S)-2-bromo-3-chlorobutane
 d. racemic-2-bromo-3-chlorobutane
 e. (2R,3S)-2-bromo-3-chlorobutane

Clear my choice

4.

Question 10
Not yet answered
Marked out of 1.07
Flag question

What major product(s) will be formed from this reaction ?

I
 II and IV
 III
 II
 IV

Clear my choice

Next page

5.

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$$\begin{array}{c}
 \text{H}_3\text{C} \\
 | \\
 \text{H}_3\text{C} - \text{CH} - \text{CH}_2 - \text{C}(=\text{O}) - \text{CH}_2 - \text{C}(=\text{O}) - \text{OH}
 \end{array}$$

A. 6-Methyl-4-heptanoic acid
 B. 6-Methyl-4-oxoheptanoic acid
 C. 6-Methyl-1-hydroxy-1,4-heptandione
 D. 5-Isopropyl-4-oxopentanoic acid
 E. 5-Methyl-3-oxohexanoic acid

Clear my choice

6.

Time left 0:16

What is the relationship between the following pair of molecules ?

identical
 Constitutional isomers
 conformers
 enantiomers
 cis-trans isomers
 Clear my choice

Next p

7.

Time left 0:21:16

In the reaction below, the product is (a)

A III and IV
 B III only
 C IV only
 D I and V
 E II only
 F I only

8.

Time left 0:23:44

Which reaction sequence converts benzene into m-chloriodobenzene ?

a. 1) $\text{Cl}_2/\text{FeCl}_3$, 2) HCl, then KI
 b. 1) $\text{KI}/\text{Cu}_2\text{I}_2(0^\circ\text{C})$, 2) $\text{Cl}_2/\text{FeCl}_3$
 c. 1) $\text{Cl}_2/\text{FeCl}_3$, 2) $\text{HNO}_3/\text{H}_2\text{SO}_4$, 3) SnCl_2/HCl , 4) $\text{NaNO}_2/\text{H}^+(0^\circ\text{C})$, then KI
 d. 1) $\text{Cl}_2/\text{FeBr}_3$, 2) SnCl_2/HCl , 3) $\text{HNO}_3/\text{H}_2\text{SO}_4$, 4) $\text{NaNO}_2/\text{HBr}/\text{Cu}_2\text{Br}_2(0^\circ\text{C})$
 e. 1) $\text{HNO}_3/\text{H}_2\text{SO}_4$, 2) $\text{Cl}_2/\text{FeCl}_3$, 3) SnCl_2/HCl , 4) $\text{NaNO}_2/\text{H}^+(0^\circ\text{C})$, then KI

Clear my choice

9.

The alcohol which reacts fastest with Lucas's reagent (HCl/ZnCl₂)

Time left 0:04:44

a. isobutyl alcohol

b. isopropyl alcohol

c. 1-butanol

d. 2-methyl-2-butanol

e. sec-butyl alcohol

Clear my choice

Next page

10.

Which of the following compounds is never chiral?

A. 1-bromo-2-chlorobutane

B. 1, 2-dichlorobutane

C. 4-dibromobutane

D. 1, 3-dibromobutane

E. 2, 3-dibromobutane

Clear my choice

11.

Which is the electrophilic reagent generated in this reaction?

Time left 0:09:00

$\text{C}_6\text{H}_5\text{CO}_2\text{H} \xrightarrow[\text{AlCl}_3]{\text{C}_6\text{H}_5\text{COCl}}$

$\text{C}_6\text{H}_5\text{CO}_2\text{H}$ I $\text{C}_6\text{H}_5\text{CO}^+\text{C}_6\text{H}_5$ II $\text{C}_6\text{H}_5\text{CO}^+\text{C}_6\text{H}_5$ III $\text{C}_6\text{H}_5\text{CO}^+\text{C}_6\text{H}_5$ IV $\text{C}_6\text{H}_5\text{CO}_2\text{H}$ V

A. V

B. I

C. II

D. IV

E. III

Clear my choice

Next page

12.

Time left 0:00:41

In the structure below which carbon atom (A, B, D, R, X and Z) is the most electronegative

$$\begin{array}{c} \text{H}_3\text{C}-\text{CH}_2-\text{H} \\ | \\ \text{C} \\ | \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ | \quad | \quad | \\ \text{H} \quad \text{H} \quad \text{A} \\ \text{B} \end{array}$$

A D

B Z

C X

D B

E R

F A

[Clear my choice](#)

13.

What is the major product of the following reaction ?

$$\text{C}_2\text{H}_5-\text{C}\equiv\text{CH} \xrightarrow[\text{2) } \text{CH}_3\text{Br}]{\text{1) } \text{NaNH}_2} ?$$

$\xrightarrow{\text{3) } \text{H}_2 / \text{Lindlar catalyst}}$

I: $\text{C}_2\text{H}_5-\text{C}\equiv\text{C}-\text{CH}_3$ II: $\text{C}_2\text{H}_5-\text{C}=\text{CH}_2$ III: $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{C}_2\text{H}_5$ IV: $\text{C}_2\text{H}_5-\text{C}\equiv\text{C}-\text{CH}_2\text{Br}$ V: $\text{C}_2\text{H}_5-\text{C}=\text{N}-\text{CH}_3$

a. III

b. II

c. I

d. IV

e. V

[Clear my choice](#)

[Next page](#)

14.

Time left 0:01:51

27

Which structures is a correct resonance structure of this molecule? : $\text{H}_2\text{C}=\text{N}(\text{CH}_3)-\text{N}(\text{CH}_3)-\text{CH}_3$

I: $\text{H}_3\text{C}-\text{N}^+=\text{N}-\text{CH}_3$ II: $\text{H}_3\text{C}-\text{N}=\text{N}^+-\text{CH}_3$ III: $\text{H}_3\text{C}-\text{N}=\text{N}-\text{CH}_3$ IV: $\text{H}_3\text{C}-\text{N}^+=\text{N}-\text{CH}_3$

II only

I only

IV only

I and III

III only

[Clear my choice](#)

[Next page](#)

15.

Time left 0:03:41

Starting with p-bromonitrobenzene what sequence of reactions will produce nitrobenzene?

a. 1. H₂O, 2. Mg/ether

b. 1. Br₂/AlBr₃, 2. Mg/ether, 3. D₂O

c. 1. Mg/ether, 2. H₂O

d. 1. H₂O, 2. Br₂/AlBr₃

e. 1. H₂SO₄, 2. Mg/ether, 3. D₂O

Clear my choice

16.

Time left 0:05:28

What is the relationship between the following pair

enantiomers

conformers

diastereomers

identical

Constitutional isomers

17.

Time left 0:06:19

16 What is the major product of the following reaction?

A.

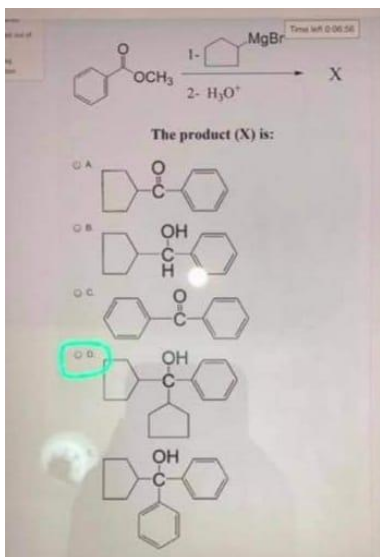
B.

C. and

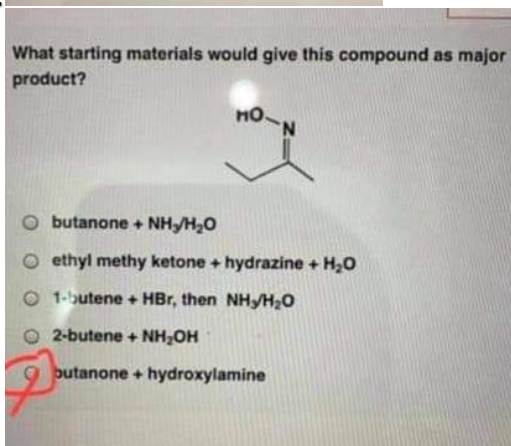
D. and

E.

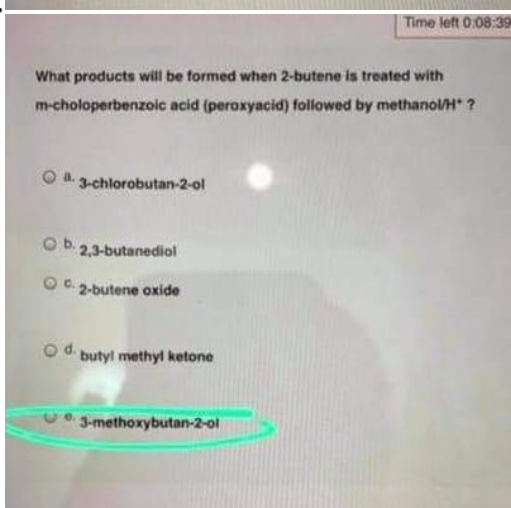
18.



19.



20.



21.

22.

Time left 0:01:48

Which carbonyl compound reacts fastest with nucleophiles ?

- a. 2,2-dichloropropanal
- b. cyclopentanone
- c. 2,4,6-trimethylbenzaldehyde
- d. 2,2-dimethylbutanal
- e. acetone

23.

Time left 0:09:19

Which is the electrophilic reagent generated in this reaction?

- A. III
- B. IV
- C. V
- D. II
- E. I

24.

Time left 0:11:33

The product(s) in the following reaction is(are)

- A. II only
- B. I and IV
- C. V only
- D. IV only
- E. III and V

25.

Which molecular formula corresponds to a cycloalkene?

- C₁₁H₁₈
- C₈H₁₂
- C₁₀H₁₈
- C₈H₁₆
- C₇H₁₄

26.

Starting with *p*-bromotoluene what sequence of reactions will produce *p*-deuteriotoluene?

- a. 1. D₂O, 2. Mg/ether
- b. 1. H₂SO₄, 2. Mg/ether, 3. D₂O
- c. 1. Br₂/AlBr₃, 2. Mg/ether, 3. D₂O
- d. 1. Mg/ether, 2. D₂O
- e. 1. D₂O, 2. Br₂/AlBr₃

27.

In the following reaction

$$\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl} \xrightarrow[2- \text{LiAlH}_4]{1- \text{CH}_3\text{NH}_2} \text{X}$$

The product (X) is:

- A.
- B.
- C.
- D.
- E.

28.

What is the correct IUPAC name of the following compound

- A. 3-Chloro-2-methyl-1-cyclohexene
- B. 1-Chloro-2-methylcyclohexene
- C. 2-Chloro-1-methylcyclohexene
- D. 3-Chloro-2-methylcyclohexene
- E. 6-Chloro-1-methylcyclohexene

29. The alcohol which reacts slowest with Lucas's reagent (HCl/ZnCl₂) is:

- a. tert-butyl alcohol
- b. 1-pentanol
- c. cyclopentanol
- d. sec-butyl alcohol
- e. 2-propanol

30. In the reaction below, the product is (are)

CC=CC + H2O $\xrightarrow{H^+}$ CC(O)CC (I) CC(O)CC (II)

CC=CC + H2O $\xrightarrow{H^+}$ CC(O)CC (III) CC(O)CC (IV) CC(O)CC (V)

a. III and V

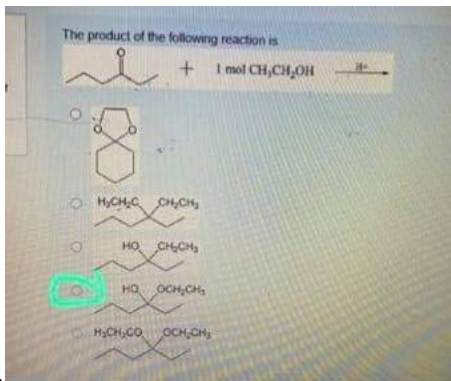
31. Which of the following water-insoluble compounds becomes soluble upon addition of NaOH?

- A. cycloheptene
- B. acetophenone
- C. 2-octanol
- D. *m*-ethylphenol
- E. *m*-bromoaniline

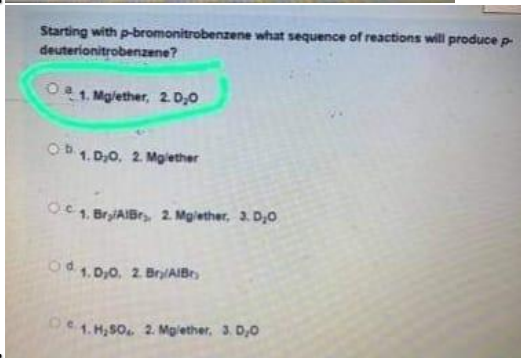
32. What starting materials would give this compound as major product?

N=C1CCCC1

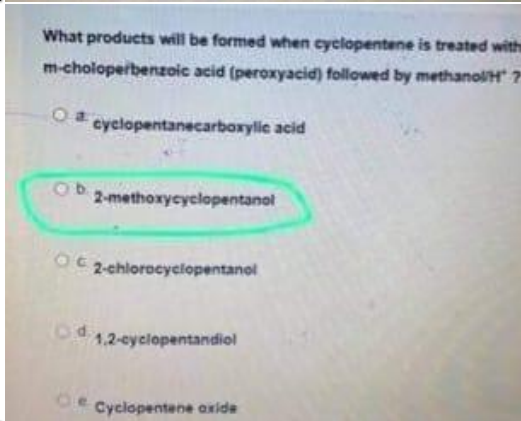
- a. cyclopentene + NH₃/NaOH
- b. cyclopentanone + NH₃(excess)
- c. cyclopentanone + hydroxylamine
- d. cyclopentene + HBr, then NH₃/OH⁻
- e. cyclopentanone + hydrazine



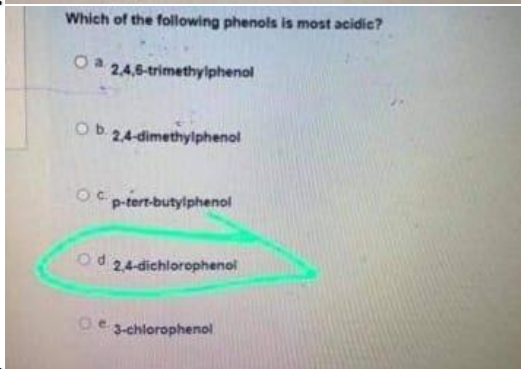
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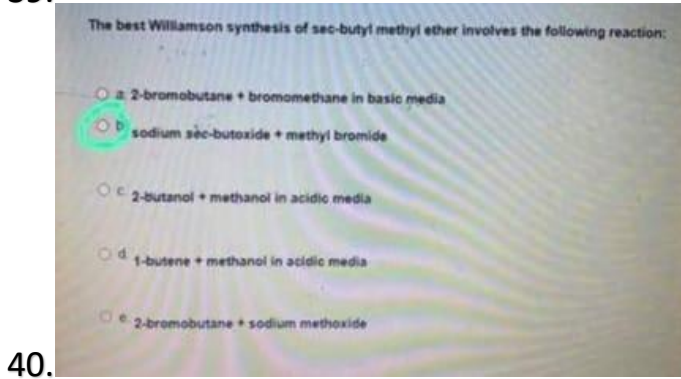
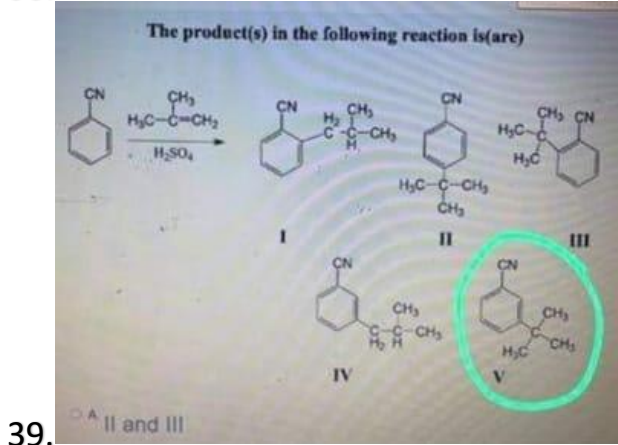
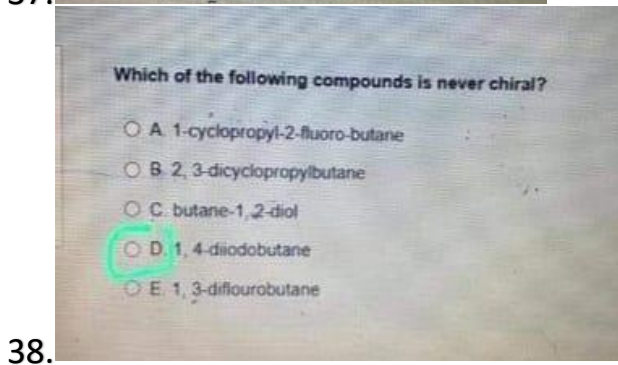
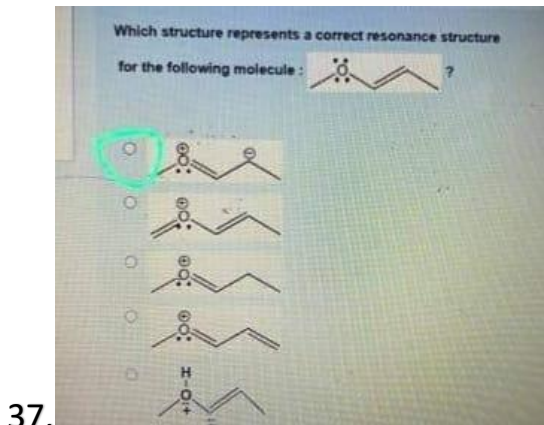
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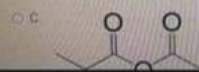
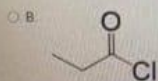
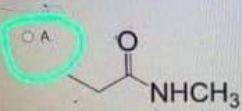
35.



36.

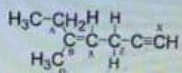


Which of the following is Least reactive toward substitution with CH_3MgBr ?



41.

In the structure below which carbon atom (A, B, D, R, X and Z) is the most electronegative



A D

B B

C Z

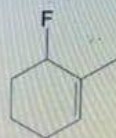
D A

E R

F X

42.

What is the correct IUPAC name of the following compound



A 1-Fluoro-2-methylcyclohexene

B 6-Fluoro-1-methylcyclohexene

43.

Which carbonyl compound reacts slowest with nucleophiles ?

a. acetaldehyde

b. cyclohexanone

c. diethyl ketone

d. formaldehyde

e. diisopropyl ketone

44.

Question 18
Not yet answered
Marked out of 1.67
Flag question

What is the relationship between the following pair?

identical
 enantiomers
 conformers
 Not isomers
 diastereomers

45.

Question 13
Not yet answered
Marked out of 1.67
Flag question

Which of the following compounds is never chiral?

A. butane-1, 2-diol
 B. 1, 4-diiodobutane
 C. 2, 3-dicyclopropylbutane
 D. 1-cyclopropyl-2-fluoro-butane
 E. 1, 3-difluorobutane

46.

Question 9
Not yet answered
Marked out of 1.67
Flag question

The product of the following reaction is

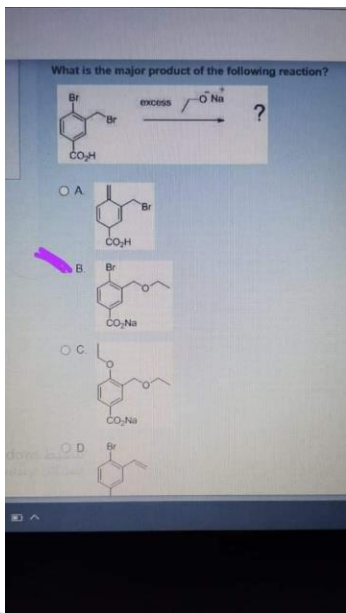
47.

Question 11
Not yet answered
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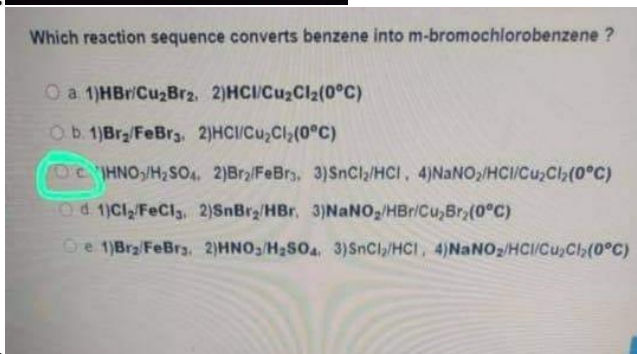
The best Williamson synthesis of isopropyl methyl ether involves the following reaction:

a. 2-bromopropane + bromomethane in basic media
 b. Propene + methanol in acidic media
 c. Isopropyl bromide + sodium methoxide
 d. sodium isopropoxide + methyl bromide
 e. 2-propanol + methanol in acidic media

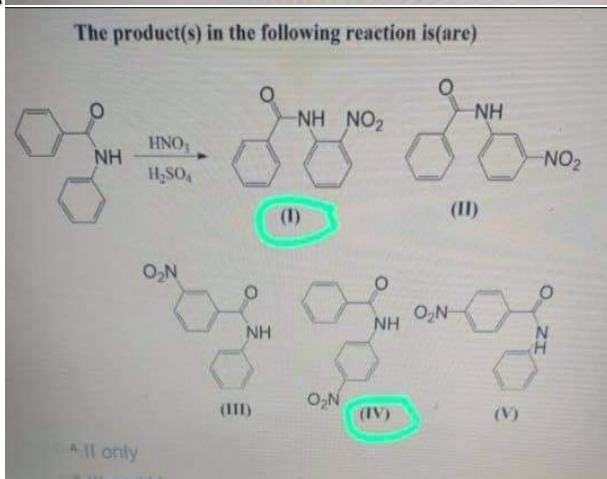
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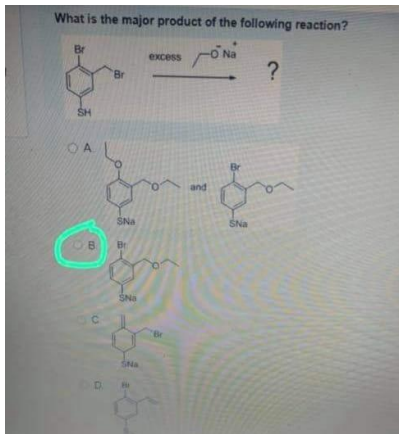
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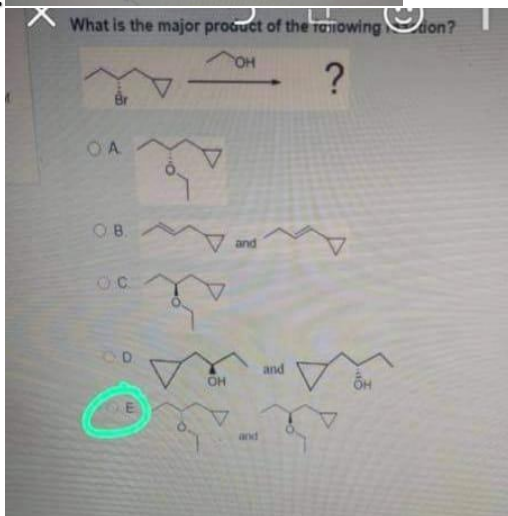
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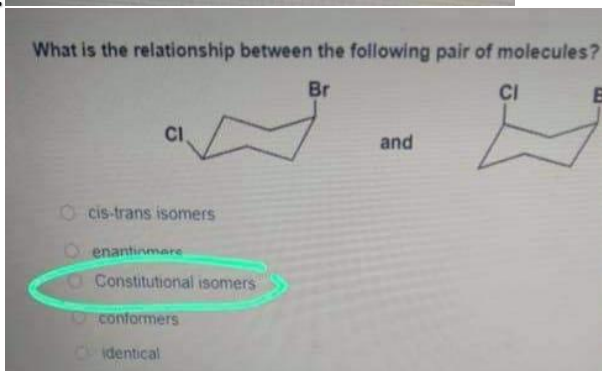
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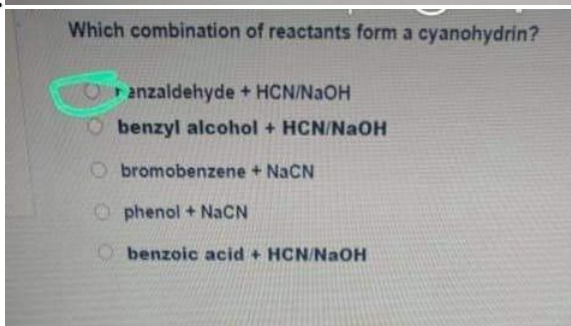
52.



53.



54.



55.

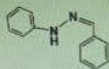
Flag question

The best Williamson synthesis of sec-butyl methyl ether involves the following reaction:

- a. sodium sec-butoxide + methyl bromide
- b. 2-bromobutane + bromomethane in basic media
- c. 2-butanol + methanol in acidic media
- d. 2-bromobutane + sodium methoxide
- e. 1-butene + methanol in acidic media

56.

What starting materials would give this compound as major product?



- Benzaldehyde + aniline
- acetophenone + aniline
- Benzaldehyde + phenylhydrazine
- Benzaldehyde + hydroxylamine
- acetophenone + aniline

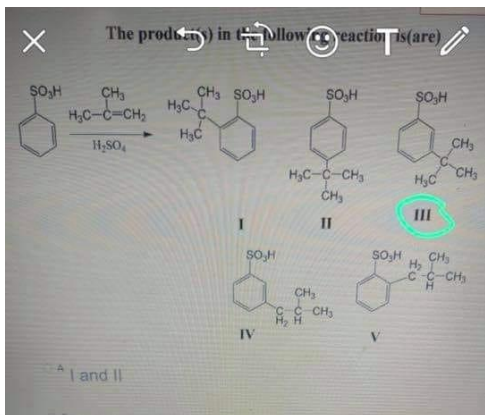
Clear my choice

57.

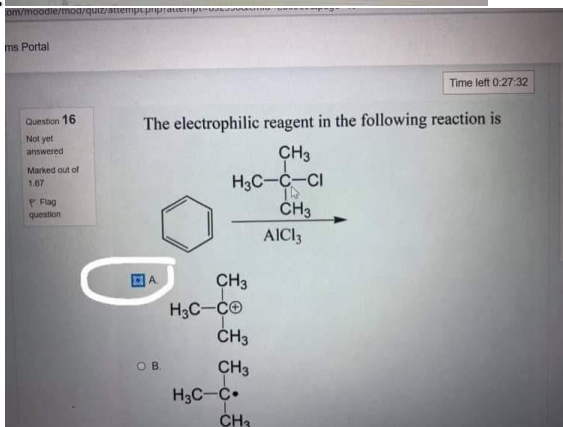
Which of the following is least reactive toward nucleophilic acyl substitution ?

- A. CH_3COCl
- B. $\text{CH}_3\text{CO}_2\text{CH}_3$
- C. $\text{CH}_3\text{CO-NH}_2$
- D. $\text{C}_6\text{H}_5\text{CO}_2\text{CH}_3$
- E. $\text{CH}_3\text{CO-O-COCH}_3$

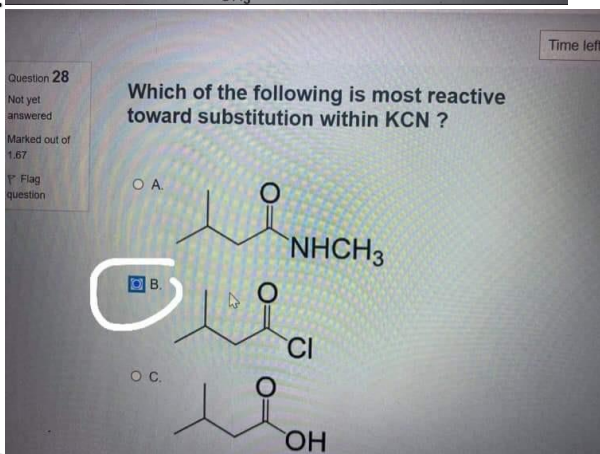
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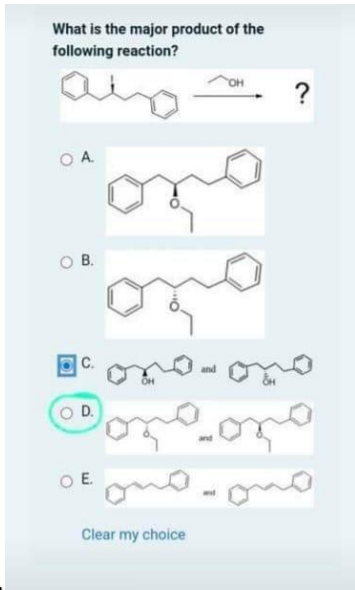
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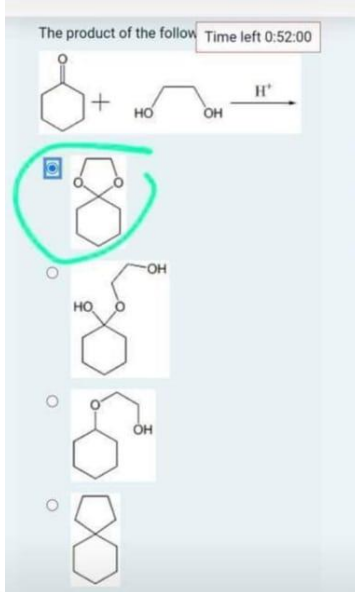
60.



61.



62.



63.

دعواتكم

[كل الشكر للجميلة سناء جعفر على حل هذه الاسئلة](#)