

# Make up first exam

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




Question 24

Not yet answered

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Flag question

Which is the best Williamson synthesis of methyl phenyl ether?

- a.  +  $\text{CH}_3\text{OH} \rightarrow$
- b.  +  $\text{CH}_3\text{Cl} \rightarrow$
- c.  +  $\text{CH}_3\text{ONa} \rightarrow$
- d.  +  $\text{CH}_3\text{OH} \rightarrow$
- e.  +  $\text{CH}_3\text{Cl} \rightarrow$

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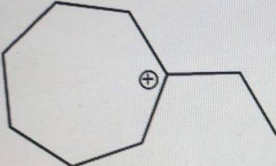
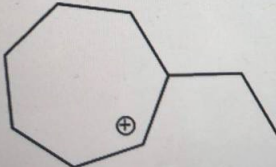
Question 23

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Which carbocation is most stable

- A. 
- B. 

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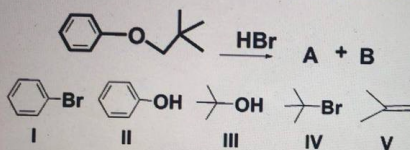
Which of the following is true about diastereomers ?

- a. They have same chemical properties but different physical properties
- b. Their molecules have superimposable mirror images
- c. They should have no chiral centers
- d. They have different physical and chemical properties
- e. They react similarly with achiral reagents

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What are the two products of the following reaction?



- a. I + III
- b. I + V
- c. II + III
- d. I + IV
- e. II + IV

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Which name is incorrect ?

- a. cis-2-butene
- b. 1,2-cyclopentadiene
- c. 2-methyl-2-hexene
- d. 3-methyl-1,5-hexadiene
- e. 1,4-dimethylcyclohexene

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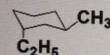
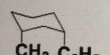
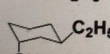
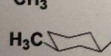
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Which statement is not true for  $S_N2$  reaction ?

- a. it occurs with inversion of configuration
- b. it is faster with strong nucleophiles
- c. Rate depends on the concentration of both reactants
- d. it occurs in two steps
- e. It is preferred for less crowded substrates

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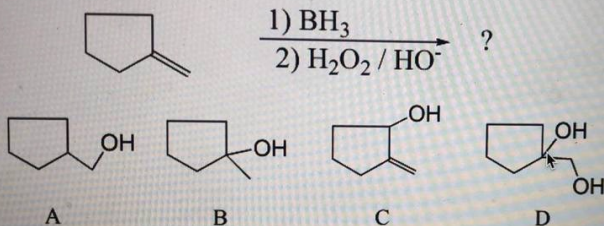
Which chair conformation of *trans*-1-ethyl-3-methylcyclohexane is most stable ?

- a.  **CH<sub>3</sub>**  
**C<sub>2</sub>H<sub>5</sub>**
- b.  **CH<sub>3</sub>** **C<sub>2</sub>H<sub>5</sub>**
- c.  **C<sub>2</sub>H<sub>5</sub>**  
**CH<sub>3</sub>**
- d.  **H<sub>3</sub>C** **C<sub>2</sub>H<sub>5</sub>**

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Time left 0:49:22

Select the major hydroboration product :



- a. D
- b. B
- c. A
- d. C

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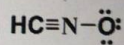
Question 12

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What are the formal charges of the carbon and nitrogen atoms in the following Lewis structure?  
(Atomic numbers: C=6, N=7)



- a. C=0, O=-1
- b. C=+1, N=0
- c. C=0, O=-1
- d. C=+1, O=-1
- e. C=-1, O=0

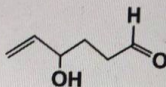
Question 18

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What is the name of this compound?



- a. 5-hexene-1-al-4-ol
- b. 4-hydroxyhexenal
- c. 3-hydroxy-1-hexene-6-al
- d. 6-oxo-1-hexene-3-ol
- e. 4-hydroxy-5-hexenal

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Which is the major product of the following reaction?

Oc1ccccc1CO  $\xrightarrow{\text{PBr}_3}$

I Oc1ccccc1CBr    II BrC1=CC=C(C=C1)CBr    III BrC1=CC=C(C=C1)CO    IV Oc1ccc(Br)cc1CO

a. II  
 b. II and IV  
 c. III  
 d. I  
 e. IV

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Which molecule is a meso form?

I C[C@H]1CC[C@@H]1Cl    II O[C@H]1CC[C@@H]1O    III Cl[C@H]1CC[C@@H]1Cl    IV C[C@H]1CC[C@@H]1C

a. IV only  
 b. II only  
 c. none of them  
 d. II and III  
 e. III only

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My courses ORGANIC CHEMISTRY FOR NONCHEMISTRY MAJORS General Make-up Exam Sunday ( 26-9

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With which halide is Elimination reaction most favored ?

- a. 2-Bromohexane
- b. 1-Bromo-2-hexene
- c. 3-Bromo-3-methylhexane
- d. 1,6-Dibromohexane
- e. *p*-Ethylbromobenzene

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$$\text{H}_3\text{C}-\overset{\text{CH}_3}{\text{C}}=\text{CH}-\text{CH}_2-\text{C}\equiv\text{CH} + \text{H}_2\text{O} \xrightarrow{\text{H}^+ / \text{Hg}^{2+}}$$

I)  $\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_2-\text{CH}_2-\overset{\text{H}}{\underset{\text{OH}}{\text{C}}}-\text{CH}_3$

II)  $\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{CH}}}-\overset{\text{CH}_3}{\underset{\text{O}}{\text{CH}}}-\text{CH}_2-\overset{\text{O}}{\text{C}}-\text{CH}_3$

III)  $\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\text{C}}-\text{CH}_2-\overset{\text{O}}{\text{C}}-\text{H}$

IV)  $\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{O}}{\text{CH}}}-\overset{\text{O}}{\text{C}}-\text{CH}_2-\overset{\text{O}}{\text{C}}-\text{CH}_3$

V)  $\text{H}_3\text{C}-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\text{C}}-\text{CH}_3$

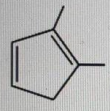
- A. IV
- B. V
- C. III
- D. II
- E. I

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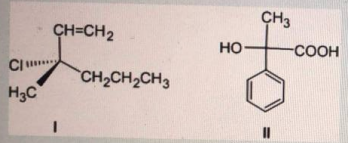
What is the product of hydrogenation of this compound with H<sub>2</sub> / Lindlar catalyst ?



- a. trans-1,2-dimethylcyclopentane
- b. cis-1,2-dimethylcyclopentane
- c. no reaction occurs
- d. 3,4-dimethylcyclopentene
- e. 1,2-dimethylcyclopentene

Question 19  
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Determine the configurations of these molecules  
(Atomic mass : C=12; N=14; O=16; Cl=35.5; Br= 80)



- a. I : R ; II : R
- b. I : S ; II : S
- c. I : R ; II : S
- d. I : S ; II : R
- e. I : S ; II : RS

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Which of the following is the weakest base ?

- a. ammonia
- b. aniline
- c. cyclohexylamine
- d. 4-nitroaniline
- e. diethylamine

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General

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Which reaction sequence converts p-bromoaniline into p-bromochlorobenzene ?

- a. 1)  $\text{NaNO}_2 / \text{HBr}$  ( $0^\circ\text{C}$ )    2)  $\text{Cu}_2\text{Br}_2$
- b. 1)  $\text{HNO}_3 / \text{H}_2\text{SO}_4$  ( $0^\circ\text{C}$ )    2)  $\text{Cu}_2\text{Cl}_2$
- c. 1)  $\text{HNO}_3 / \text{H}_2\text{SO}_4$  ( $0^\circ\text{C}$ )    2)  $\text{HBr} / \text{Cu}_2\text{Br}_2$
- d. 1)  $\text{NaNO}_2 / \text{HCl}$  ( $0^\circ\text{C}$ )    2)  $\text{Cu}_2\text{Cl}_2$

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Which reaction will give an amide ?

- a. Benzoyl chloride +  $\text{CH}_3\text{Br}$  +  $\text{AlCl}_3$  (catalyst)
- b. Acetic anhydride +  $\text{H}_2\text{O}$  +  $\text{H}_2\text{SO}_4$  (catalyst)
- c. Acetic acid + methanol +  $\text{H}_2\text{SO}_4$  (catalyst)
- d. ethylamine + benzoyl chloride
- e. Benzoic acid +  $\text{CH}_3\text{CN}$  +  $\text{NaOH}$  (catalyst)

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General

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Which step is *NOT* chain-terminating in free radical chlorination ?

- a.  $\text{CH}_3\cdot + \text{CH}_3\cdot$  giving  $\text{CH}_3\text{-CH}_3$
- b.  $\text{Cl}\cdot + \text{CH}_3\cdot$  giving  $\text{CH}_3\text{Cl}$
- c.  $\text{CH}_3\cdot + \text{Cl}_2$  giving  $\text{CH}_3\text{-Cl} + \text{Cl}\cdot$
- d.  $\text{Cl}\cdot + \text{Cl}\cdot$  giving  $\text{Cl}_2$

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Which reaction procedure converts cyclohexanol into 1-methylcyclohexanol ?

- a. react cyclohexanol with  $\text{SOCl}_2$ , then  $\text{CH}_3\text{ONa}$ , then neutralize with dilute acid
- b. react cyclohexanol with Na metal, then add  $\text{CH}_3\text{OH}$
- c. heat cyclohexanol with  $\text{H}_2\text{SO}_4$ , then add  $\text{CH}_3\text{Br}/\text{NaOH}$
- d. react cyclohexanol with  $\text{CH}_3\text{COOH}$  using NaOH as catalyst
- e. react cyclohexanol with  $\text{CrO}_3/\text{H}^+$ , then add  $\text{CH}_3\text{MgBr}$  followed by  $\text{H}_2\text{O}/\text{H}^+$

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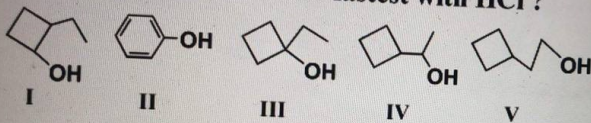
Time

Which carboxylic acid derivative reacts fastest with nucleophiles ?

- a. anhydrides
- b. all are equally reactive
- c. esters
- d. acyl chlorides
- e. amides

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Which compounds reacts fastest with HCl ?

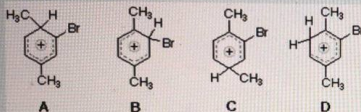


- a. IVI
- b. II
- c. I
- d. V
- e. II

Question 15

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Which structure represents the intermediate for bromination of p-dimethylbenzene ?



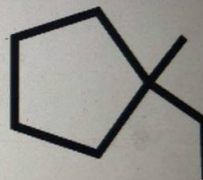
- a. D
- b. A
- c. B
- d. C

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Which reaction sequence would you use to prepare 4-chloroaniline from benzene ?

- a. 1) chlorination 2) reduction with  $\text{SnCl}_2/\text{HCl}$  3) nitration
- b. 1) nitration 2) reduction with  $\text{SnCl}_2/\text{HCl}$  3) chlorination
- c. 1) chlorination 2) nitration 3) reduction with  $\text{SnCl}_2/\text{HCl}$
- d. 1) nitration 2) chlorination 3) reduction with  $\text{SnCl}_2/\text{HCl}$
- e. 1) substitution with  $\text{NH}_3$  2) chlorination 3) oxidation with  $\text{CrO}_3$

How many monobromination products would this compound give upon free radical bromination?



- a. 6
- b. 4
- c. 7
- d. 3

Which alcohol is most difficult to oxidize ?

- a. 1-phenylcyclopentanol
- b. ethanol
- c. 1-propanol
- d. 2,3-dimethyl-1-butanol
- e. 3-methylcyclohexanol

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General

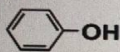
Make-up Exam Sun

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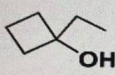
Which compounds reacts fastest with HCl ?



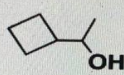
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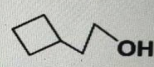
II



III



IV



V

- a. IV
- b. II
- c. I
- d. V
- e. II

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