



King Saud University  
College of Science

Prof. Yahia Mabkhot

**Introduction**

**Quit**

# Organic Chemistry

## Chem. 145



Chemistry Department

### Chapter 1



**Introduction**

**Types of Chemical Bonds**

**Atomic Structures  
Sigma and pi Bonds**

**Hybridization**

**Inductive Effect**

**Bond Polarity and Dipole  
Moment**

**Questions**

**Main Screen**

**Quit**

## Questions

4 - The type of hybridization of the selected carbon is  $\text{H}_2\text{C}=\text{CH}-\text{CH}_3$



sp

sp<sup>2</sup>

sp<sup>3</sup>

sp<sup>3</sup>d

Submit



Next

**Introduction**

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**Inductive Effect**

**Bond Polarity and Dipole  
Moment**

**Questions**

**Main Screen**

**Quit**

## Questions

3- The number of sigma bonds in  $\text{H}_2\text{C}=\text{CH}-\text{CH}_3$

6

7

8

9

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**Introduction**

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**Questions**

**Main Screen**

**Quit**

## Questions

2- Which of the following molecules has an ionic bond ?

H<sub>2</sub>O

Cl<sub>2</sub>

C<sub>2</sub>H<sub>6</sub>

KCl

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**Introduction**

**Types of Chemical Bonds**

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**Questions**

**Main Screen**

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## Questions

1-Which of the following molecules has a covalent bond?



NaOH



NaCl



KCl

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**Alkanes**

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# Organic Chemistry

## Chem. 145



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### Chapter 2





## Questions

1- Reaction of alkanes with halogens / light is an example of :

- Free radical substitution reaction.
- Nucleophilic substitution reaction.
- Electrophilic addition reaction
- Elimination reaction.

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Next



19 of 26

### Questions

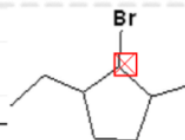
2- The compound with the least boiling point is:

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## Questions

3- The name of the following compound is:



1-Ethyl-3-methyl, 2-bromocyclopentane

1-Bromo-2-methyl-5-ethylcyclopentane

2-Bromo- 1-ethyl- 3-methylcyclopentane

1-Methyl- 2-Bromo- 3-ethylcyclopentane

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## Questions

4- Alkanes from C1 to C4 at room temperature are:

waxlike

liquids

solids

gases

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## Questions

5 -The number of isomers in the molecular formula  $C_5H_{12}$  is:-

- 1
- 2
- 3
- 4

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# Alkenes

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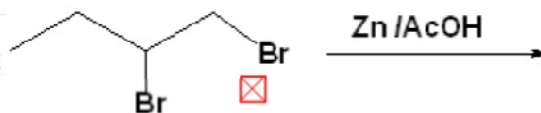
Chemistry Department

### Chapter 3



## Questions

1- The product of the following reaction is:

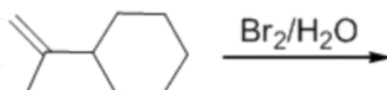


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## Questions

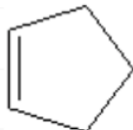
2 - The major product of the following reaction is:



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## Questions

- The product of the reaction shown is:   $\xrightarrow{\text{KMnO}_4 / \text{OH}^- / \text{H}_2\text{O}}$



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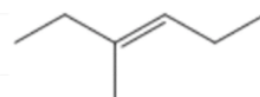
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19 of 25

## Questions

Ozonolysis of the following compound gives:

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Ne





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**Alkynes**

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# Organic Chemistry

## Chem. 145



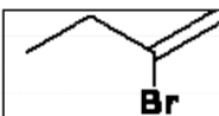
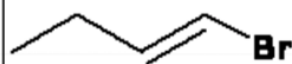
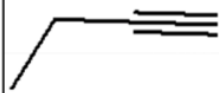
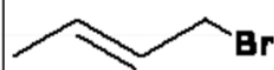
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### Chapter 4



## Questions

The product of the following reaction is   $\xrightarrow[\text{heat}]{\text{excess NaNH}_2}$

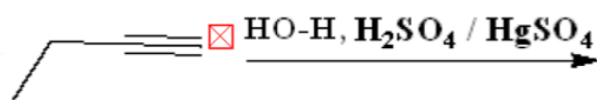


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## Questions


2 - The major product of the following reaction is:



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## Questions

The unknown compound X  $\xrightarrow[2. \text{CH}_3\text{CH}_2\text{Br}]{1. \text{NaNH}_2}$    $\text{C}\equiv\text{C}-\text{CH}_2-\text{CH}_3$

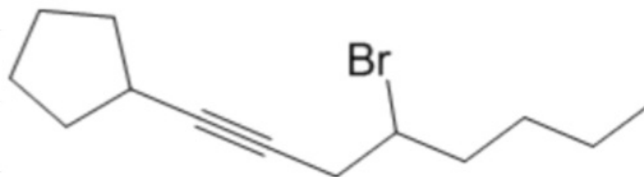


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## Questions

4- The correct IUPAC name of the following compound is:



1-Cyclopentyl-4-bromooct-1-yne

8-Cyclopentyl-5-bromooct-1-yne

4-Bromo-1-cyclopentyl-1-octyne

2-Bromo-3-cyclopentyl-1-octyne

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## Questions

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5- Reaction of alkynes with HBr is an example of

Electrophilic addition reaction.

Nucleophilic substitution reaction.

Electrophilic substitution reaction.

Free radical addition reaction.

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14/16





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## Aromatic Compounds

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## Chapter 5





## Questions

1- Which of the following compounds has an aromatic character?

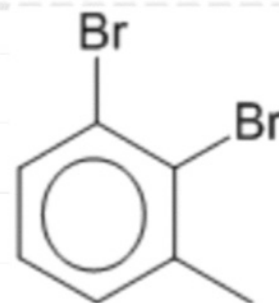


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## Questions

2 -The name of the following compound is:



2,3-Dibromotoluene

1,2-Dibromotoluene

2,3-Dibromobenzene

2,3-Dibromophenol

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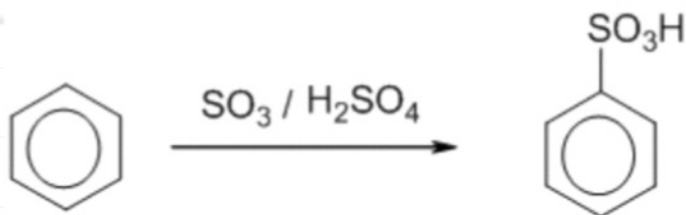
## Questions

3 - The following reaction gives:   $\xrightarrow{\text{hot KMnO}_4}$  ?

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## Questions

4 - The type of the following reaction is:



Nucleophilic substitution

Electrophilic addition

Nucleophilic addition

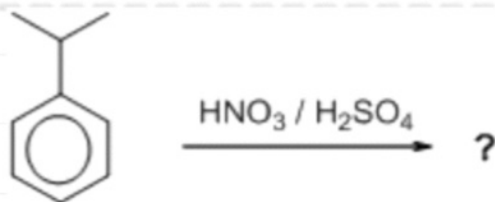
Electrophilic substitution

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# Questions

5- One of the expected products of the following reaction is:



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