



Pool Canvas

Add, modify, and remove questions. Select a question type from the Add Question drop-down list and click **Go** to add questions. Use Creation Settings to establish which default options, such as feedback and images, are available for question creation.

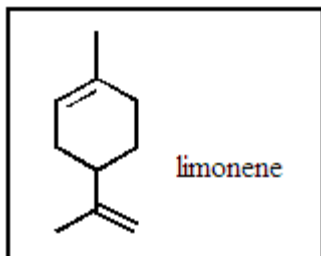
Add Calculated Formula

[Creation Settings](#)**Name** TestBank Chapter 1**Description** Question pool for TestBank Chapter 01**Instructions**[Modify](#)[◀ Add Question Here](#)

Question 1

Multiple Choice**0 points**[Modify](#)[Remove](#)**Question**

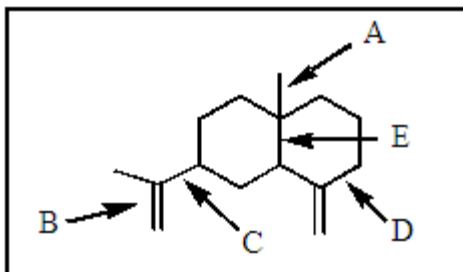
What is the molecular formula of limonene, the major volatile compound in orange peel oil?

**Answer** $C_{10}H_{18}$ $C_{10}H_{20}$  $C_{10}H_{16}$ $C_{11}H_{14}$ $C_{11}H_{18}$ [◀ Add Question Here](#)[Modify](#)[Remove](#)

Question 2

Multiple Choice**0 points****Question**

Of those indicated, which would be the shortest carbon-carbon bond in α -selinene?

**Answer**

A

B

C

D

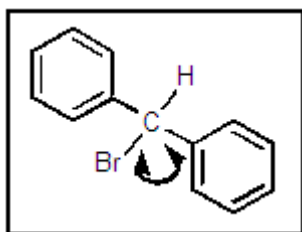
E

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Question 3

Multiple Choice**0 points****Question**

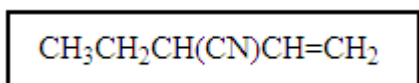
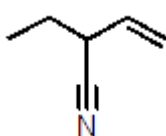
What would be the ideal value for the indicated bond angle?

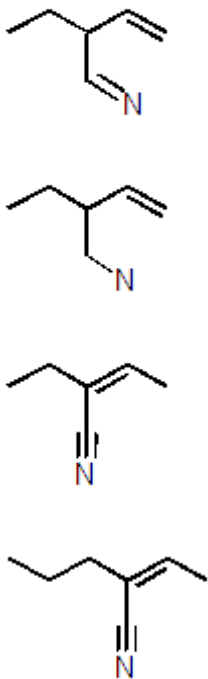
**Answer** 120° 90° 104° 180°  109° [◀ Add Question Here](#)[Modify](#)[Remove](#)

Question 4

Multiple Choice**0 points****Question**

What would be the “polygon” form of the following condensed structure?

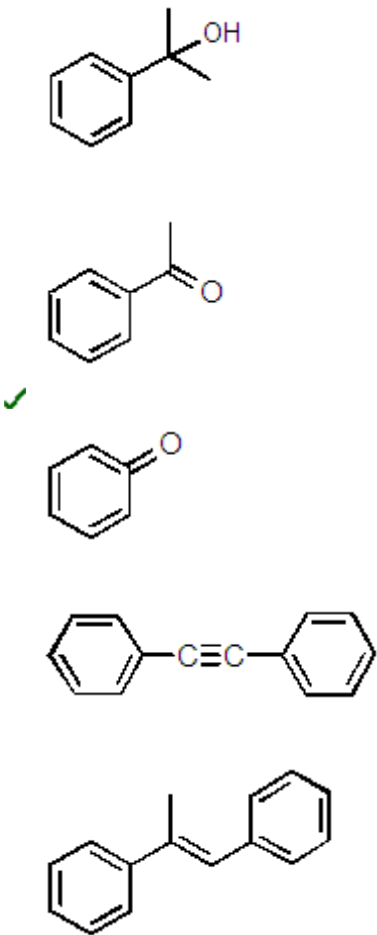
**Answer**



[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 5 Multiple Choice 0 points

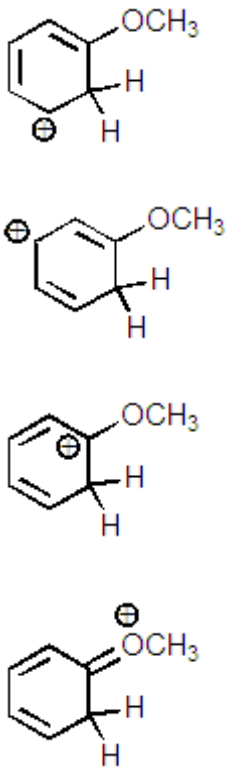
Question
Which one of the following structures must be incorrect?
Answer



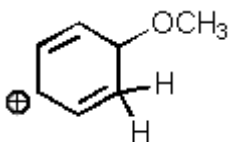
[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 6 Multiple Choice 0 points

Question
Which of the following is **not** a resonance structure of the others?
Answer



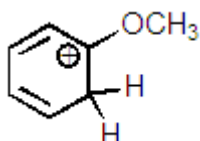
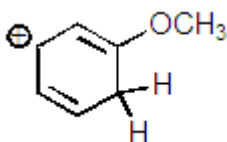
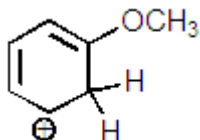
✓



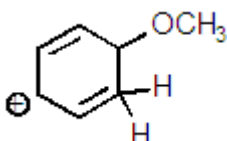
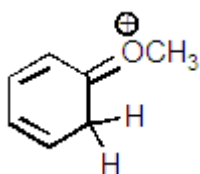
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[Modify](#) [Remove](#)

Question 7 Multiple Choice 0 points

Question
Which one of the resonance structures below would be the most important (i.e., most stable)?
Answer



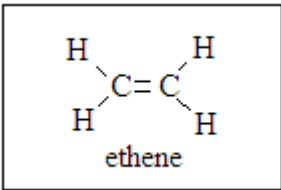
✓



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Question 8 Multiple Choice 0 points

Question
How many atoms in ethene are required by sp^2 bonding to lie in the same plane?

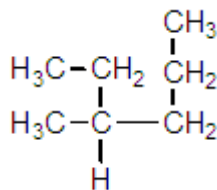
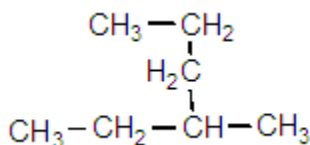
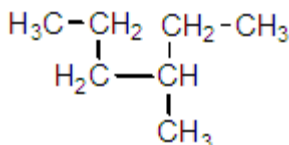


- Answer**
- 2
 - 3
 - 4
 - 5
 - ✓ 6

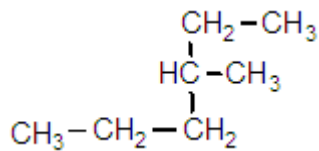
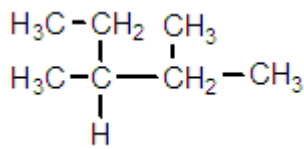
◀ [Add Question Here](#)
[Modify](#) [Remove](#)

Question 9 Multiple Choice 0 points

Question
Which one of the following structures is not chemically identical to the others?
Answer



✓



◀ [Add Question Here](#)

[Modify](#)

[Remove](#)

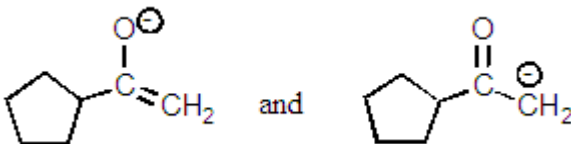
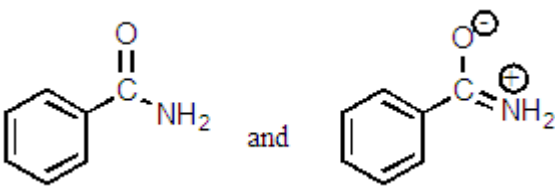
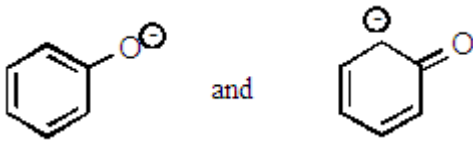
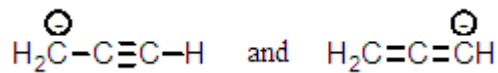
Question 10 Multiple Choice

0 points

Question

Which of the following pairs are **not** resonance structures of each other?

Answer



✓ All are pairs of resonance structures

◀ [Add Question Here](#)

[Modify](#)

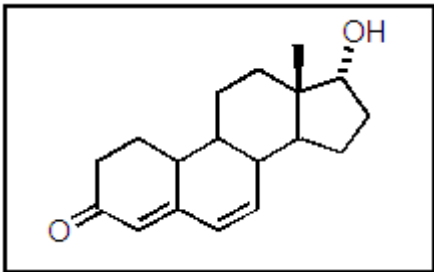
[Remove](#)

Question 11 Multiple Choice

0 points

Question

How many hydrogen atoms are part of the following steroid?



Answer

18

20

21

22

✓ 24

◀ [Add Question Here](#)

[Modify](#)

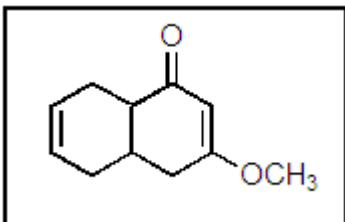
[Remove](#)

Question 12 Multiple Choice

0 points

Question

In the following molecule, how many carbon atoms are in the sp^3 hybridization state?



Answer

2

4

5

✓ 6

11

◀ [Add Question Here](#)

[Modify](#)

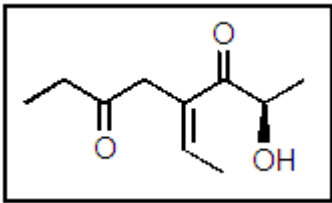
[Remove](#)

Question 13 Multiple Choice

0 points

Question

In the following molecule, how many carbon atoms are in the sp^2 hybridization state?



Answer

- 0
- 1
- 2
- ✓ 4
- 6

◀ [Add Question Here](#)

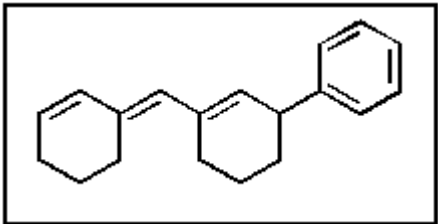
Question 14 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question

In the following molecule, how many carbon atoms are in the sp hybridization state?



Answer

- 2
- 4
- 6
- 12
- ✓ none of the above

◀ [Add Question Here](#)

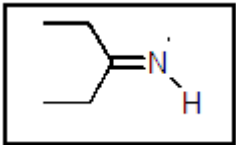
Question 15 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question

The lone-pair of electrons on nitrogen in the following molecule reside in what type of orbital?



Answer

- ✓ sp^3
- sp^2
- sp
- $2p$
- $2s$

◀ [Add Question Here](#)

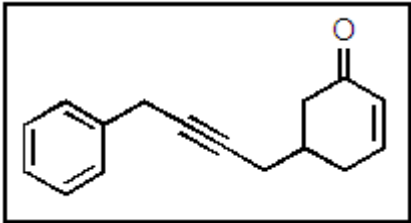
Question 16 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question

In the following molecule, how many carbon atoms are in the sp^2 hybridization state?



Answer

- 1
- 3
- 7
- 8
- ✓ 9

◀ [Add Question Here](#)

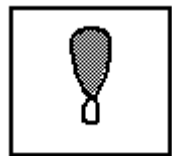
Question 17 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question

The boxed item most likely represents what?



Answer

- s orbital
- ✓ sp^3 orbital
- p orbital
- could be any of A–C
- none of the above

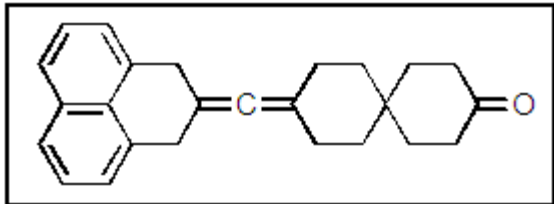
◀ [Add Question Here](#)

Question 18 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question
The following molecule contains how many carbon atoms in the *sp* hybridization state?



- Answer**
- ☒ 1
 - ☐ 3
 - ☐ 8
 - ☐ 13
 - ☐ 16

[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 19 **Multiple Choice** **0 points**

Question
The nitrogen of trimethylamine [(CH₃)₃N] contains how many lone pairs of electrons?

- Answer**
- ☐ none
 - ☒ one
 - ☐ two
 - ☐ three
 - ☐ there is no nitrogen in this molecule

[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 20 **Multiple Choice** **0 points**

Question
A positive charge on oxygen generally occurs when:

- Answer**
- ☐ oxygen has too many electrons.
 - ☐ oxygen has too few electrons.
 - ☒ oxygen is sharing one of its non-bonding electron pairs.
 - ☐ oxygen has too many non-bonding electron pairs.
 - ☐ oxygen is borrowing electrons from another atom.

[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 21 **Multiple Choice** **0 points**

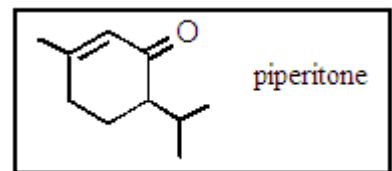
Question
The carbon atom in CH₂Cl₂ has what hybridization?

- Answer**
- ☐ *sp*
 - ☐ *sp*²
 - ☒ *sp*³
 - ☐ *sp*⁴
 - ☐ they are not hybridized

[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 22 **Multiple Choice** **0 points**

Question
The molecular formula for piperitone is

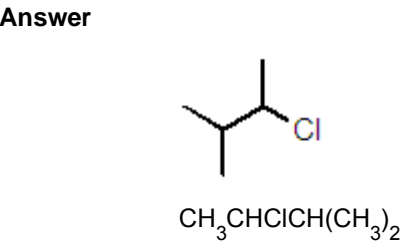


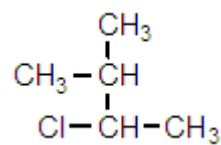
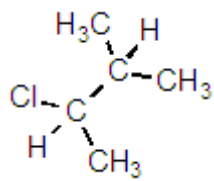
- Answer**
- ☐ C₉H₁₆O
 - ☐ C₁₀H₁₈O
 - ☐ C₉H₁₈O
 - ☐ C₁₀H₁₄O
 - ☒ C₁₀H₁₆O

[◀ Add Question Here](#)
[Modify](#) [Remove](#)

Question 23 **Multiple Choice** **0 points**

Question
Which structure is different from the others?





✓ all are identical

◀ [Add Question Here](#)

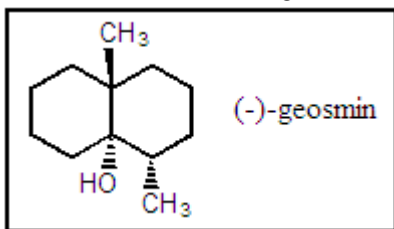
Question 24 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question

A fairly common algal metabolite is the compound (-)-geosmin, which imparts a musty odor to water even at concentrations in the ppb range. What is the molecular formula of geosmin?



Answer

- ✓ $C_{11}H_{20}O$
- $C_{12}H_{22}O$
- $C_{11}H_{21}O$
- $C_{12}H_{20}O$
- $C_{12}H_{21}O$

◀ [Add Question Here](#)

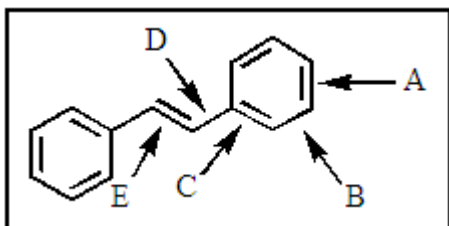
Question 25 Multiple Choice

0 points

[Modify](#) [Remove](#)

Question

Which of the carbon-carbon bonds indicated would you expect to be the **longest** in stilbene?



Answer

- A
- B
- C
- ✓ D
- E

◀ [Add Question Here](#)

Question 26 Multiple Choice

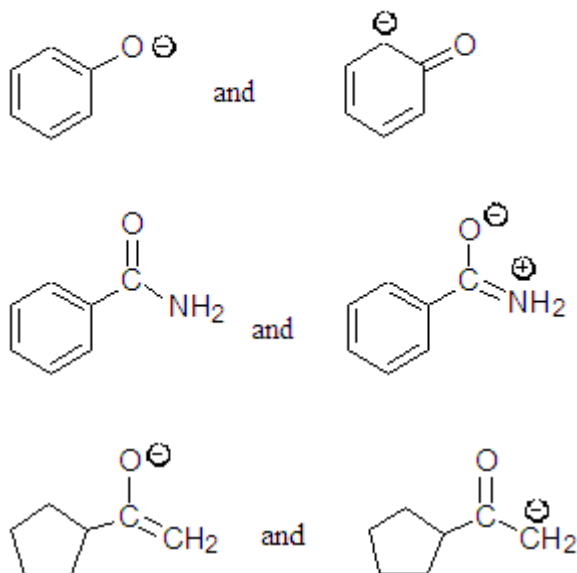
0 points

[Modify](#) [Remove](#)

Question

Which of the following pairs are **not** resonance structures of each other?

Answer ✓ $H_2C^{\ominus}-C\equiv C-H$ and $H_2C=C=CH^{\ominus}$



All are pairs of resonance structures

◀ [Add Question Here](#)

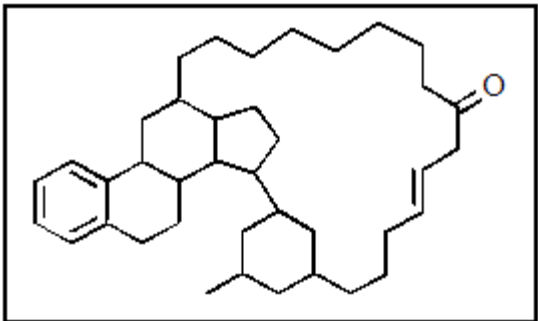
Question 27 Multiple Choice


0 points

[Modify](#) [Remove](#)

Question

The following molecule has what molecular formula?




- Answer 
- C₃₉H₅₈O

C₄₀H₅₈O

C₃₉H₆₀O

C₄₄H₄₄O

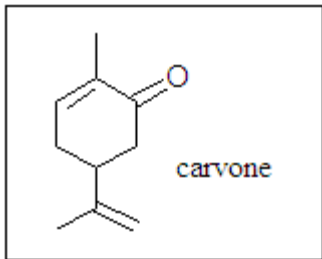
none of the above
-  [Add Question Here](#)

Modify

Remove
- Question 28

Multiple Choice


0 points
- Question


What is the molecular formula of carvone, the major volatile compound in caraway oil?
- 
- Answer

C₁₀H₁₈O

C₁₀H₁₇O

C₁₀H₁₆O

 C₁₀H₁₄O

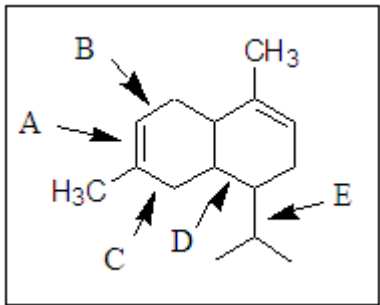

C₁₀H₁₅O
-  [Add Question Here](#)

Modify

Remove
- Question 29

Multiple Choice

0 points
- Question


Of those indicated, which would be the shortest carbon-carbon bond in β-cadinene?
- 
- Answer 

A

B

C

D

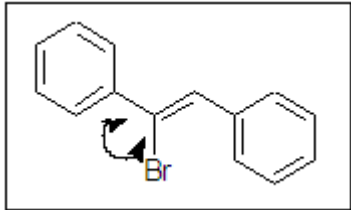

E
-  [Add Question Here](#)

Modify

Remove
- Question 30

Multiple Choice

0 points
- Question


What would be the ideal value for the indicated bond angle?
- 
- Answer 

120°

90°

104°

180°

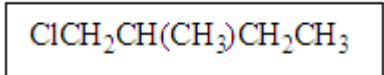
109°
-  [Add Question Here](#)

Modify

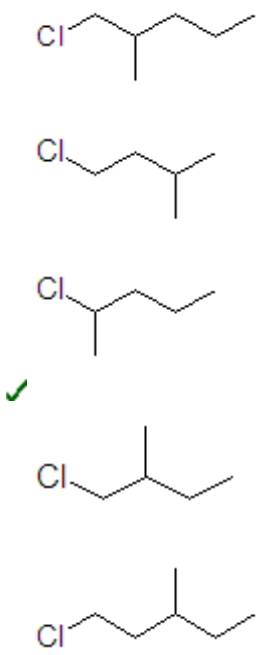
Remove
- Question 31

Multiple Choice

0 points
- Question

What would be the “polygon” form of the following condensed structure?
- 

Answer



[◀ Add Question Here](#)

[Modify](#)

[Remove](#)

Question 32

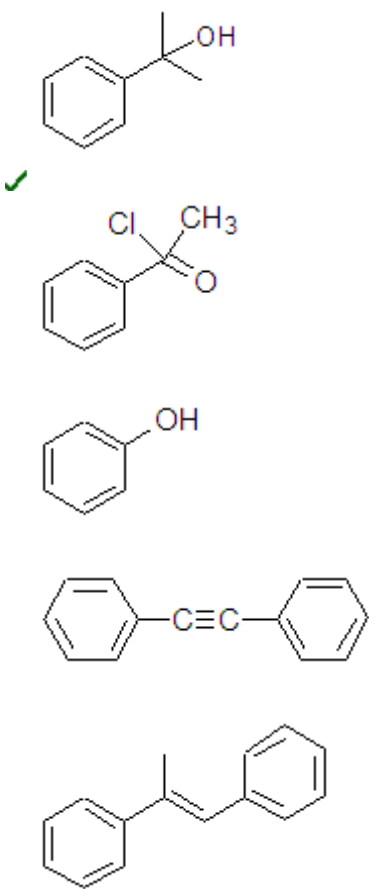
Multiple Choice

0 points

Question

Which one of the following structures must be incorrect?

Answer



[◀ Add Question Here](#)

[Modify](#)

[Remove](#)

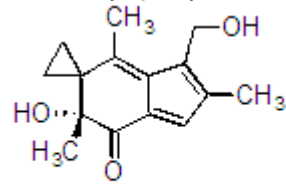
Question 33

Multiple Choice

0 points


Question

How many sp^2 hybridized carbon atoms are in the potent anticancer compound hydroxymethylacylfulvene?



hydroxymethylacylfulvene

Answer

- ☐ 2
- ☐ 4
- ☐ 6
- ☐ 8
-  none of the above

[◀ Add Question Here](#)

[Modify](#)

[Remove](#)

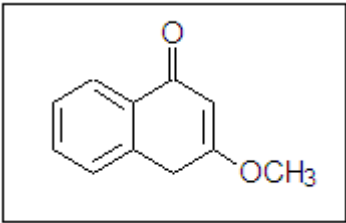
Question 34

Multiple Choice

0 points

Question

In the following molecule, how many carbon atoms are in the sp^3 hybridization state?



- Answer
- ✓

2
- 4
- 5
- 6
- 9

◀ Add Question Here

Modify Remove

Question 35

Multiple Choice

0 points

Question

Which of the following statements are true of sp orbitals?

Answer

Orbitals of the sp type are 50% s and 50% p character.

They are hybrid orbitals.

They are linear.

They result when one s orbital and one p orbital are mixed.

✓ all are correct

◀ Add Question Here

Modify Remove

Question 36

Multiple Choice

0 points

Question

Which of the following molecules are most likely to be held together by a purely covalent bond?

Answer

NaCl

✓ H_2

HF

BH_3

KI

◀ Add Question Here

Modify Remove

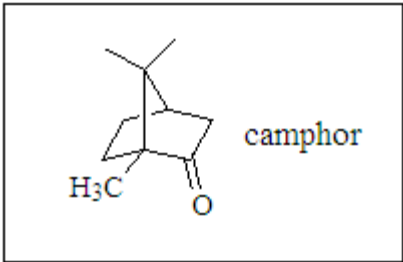
Question 37

Multiple Choice

0 points

Question

What is the molecular formula of camphor?



- Answer
- $C_{10}H_{15}O$
- ✓ $C_{10}H_{16}O$
- $C_{10}H_{17}O$
- $C_{11}H_{18}O$
- $C_{11}H_{16}O$

◀ Add Question Here

Modify Remove

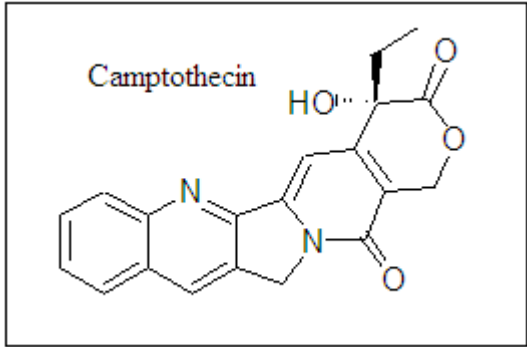
Question 38

Multiple Choice

0 points

Question

Camptothecin is an important anticancer compound; how many carbons are in the sp hybridization state?



- Answer
- ✓ 0
- 1
- 2
- 3
- 4

◀ Add Question Here

Modify Remove

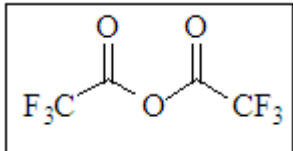
Question 39

Multiple Choice

0 points

Question

How many sp^3 carbons are in the following molecule?



- Answer
- 0

1

✓2

3

4

◀ Add Question Here

ModifyRemove

Question 40

Multiple Choice

0 points

Question
The process of adding electrons one by one to atomic orbitals beginning with the lowest energy is described by:

- Answer
- ✓ the Aufbau Principle.

Hund's Rule.

the de Broglie Relation.

the Pauli Exclusion Principle.

Coulomb's Law.

◀ Add Question Here

ModifyRemove

Question 41

Multiple Choice

0 points

Question
Which of the following cannot be a correct Lewis structure?

- Answer
- $$\begin{array}{c} \text{H}:\text{B}:\text{H} \\ | \\ \text{H} \end{array}$$

✓

$$\begin{array}{c} :\text{F}: \\ :\text{F}:\text{C}:\text{F}: \\ :\text{F}: \end{array}$$

$$\begin{array}{c} :\text{O}::\text{N}::\text{O}: \\ | \\ \text{H} \end{array}$$

$$\begin{array}{c} \text{H} \\ \text{H}:\text{C}::\text{C}:\text{H} \end{array}$$

all are correct

◀ Add Question Here

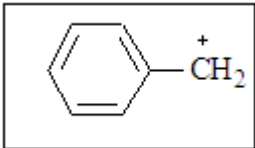
ModifyRemove

Question 42

Multiple Choice

0 points

Question
How many different resonance structures can be drawn for the benzyl cation (shown below) which place the plus charge on a carbon atom in the ring?



- Answer
- 1

2

✓3

5

6

◀ Add Question Here

ModifyRemove

Question 43

Multiple Choice

0 points

Question
Which of the following represent resonance contributing Lewis structures for CH₂N₂?

- Answer
- $$\begin{array}{c} \text{H} \\ \text{H}:\text{C}:\text{N}::\text{N}: \end{array}$$

$$\begin{array}{c} \text{H} \\ \text{H}:\text{C}::\text{N}:\text{N}: \end{array}$$

$$\begin{array}{c} \text{H} \\ \text{H}:\text{C}::\text{N}:\text{N}: \end{array}$$

$$\text{H}:\text{C}::\text{N}::\text{N}:\text{H}$$

✓ both A and B are correct

◀ Add Question Here

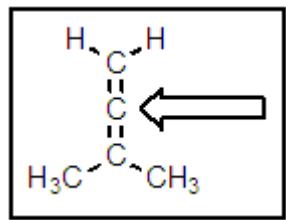
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Question 44

Multiple Choice

0 points

Question
The following molecule belongs to a class of compounds known as allenes. Based on your knowledge of bonding, predict the hybridization of the carbon atom indicated by the arrow.



- Answer**
- ☒ sp
 - ☐ sp^2
 - ☐ sp^3
 - ☐ p - p pi
 - ☐ a hypervalent carbon

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Question 45 **Multiple Choice** **0 points**

Question
How many isomers of $\text{C}_4\text{H}_9\text{Br}$ are possible?

- Answer**
- ☐ two
 - ☐ three
 - ☒ four
 - ☐ five
 - ☐ six

[◀ Add Question Here](#)
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Question 46 **Multiple Choice** **0 points**

Question
How many isomers of C_5H_{12} are possible?

- Answer**
- ☐ two
 - ☒ three
 - ☐ four
 - ☐ five
 - ☐ six

[◀ Add Question Here](#)
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Question 47 **Multiple Choice** **0 points**

Question
Which of the following most correctly defines “structural isomers”?

Answer

- ☐ molecules with different molecular formulas but the same connectivity
- ☐ compounds that are not constitutional isomers
- ☒ molecules with the same molecular formula but different connectivity
- ☐ *Anti* and *gauche* conformers
- ☐ both B and C

[◀ Add Question Here](#)
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Question 48 **Multiple Choice** **0 points**

Question
How many structural isomers exist for the formula C_6H_{14} ?

- Answer**
- ☐ 3
 - ☐ 4
 - ☒ 5
 - ☐ 6
 - ☐ 7

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Question 49 **Multiple Choice** **0 points**

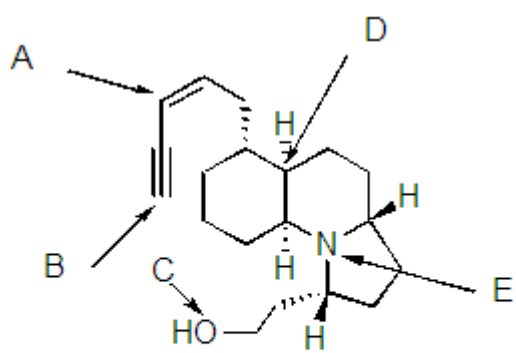
Question
A hydrocarbon with a double bond and a ring will have the general formula?

- Answer**
- ☐ $\text{C}_n\text{H}_{2n+2}$
 - ☐ C_nH_{2n}
 - ☒ $\text{C}_n\text{H}_{2n-2}$
 - ☐ $\text{C}_n\text{H}_{2n-4}$
 - ☐ $\text{C}_{2n}\text{H}_{2n}$

[◀ Add Question Here](#)
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Question 50 **Multiple Choice** **0 points**

Question
What is the hybridization of the each of the labeled atoms for the potent neurotoxin (-)-gephyrotoxin?



(-)-gephyrotoxin
 source: poison frog
 activity: neurotoxin

Answer

A = sp^2 , B = sp , C = sp^2 , D = sp^3 , E = sp^3

A = sp^2 , B = sp , C = sp^3 , D = sp^3 , E = sp^2

A = sp^2 , B = sp , C = sp^2 , D = sp^3 , E = sp^2

✓ A = sp^2 , B = sp , C = sp^3 , D = sp^3 , E = sp^3

A = sp , B = sp , C = sp^3 , D = sp^3 , E = sp^3

◀ [Add Question Here](#)

OK