Chapter 2 - Alkanes and Cycloalkanes: Introduction to Hydrocarbons (Test Bank) KEY

1. Alkanes are characterized by the general molecular formula:

A. C_nH_{2n-2}

B. C_nH_{2n}

C. C_nH_{2n+2}

C. C_nH_{2n+4}

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Acyclic vs cyclic
Subtopic: Alkanes
Subtopic: Hydrocarbons
Topic: Alkanes (Acyclic and Cyclic)
Topic: Functional Groups

2. Cycloalkanes are characterized by the general molecular formula:

A. C_nH_{2n-2}

B. C_nH_{2n}

C. C_nH_{2n+2}

D. C_nH_{2n+4}

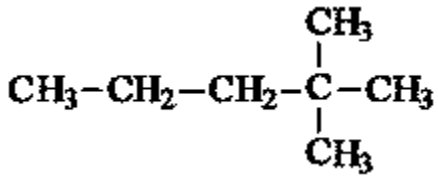
Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.18
Subtopic: Acyclic vs cyclic
Subtopic: Alkanes
Subtopic: Hydrocarbons
Topic: Alkanes (Acyclic and Cyclic)
Topic: Functional Groups

3. The carbon-carbon sigma bond in ethane is formed by overlap of which two orbitals?

A. 2p-2p
B. sp-sp
C. sp^2-sp^2
D. sp^3-sp^3

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Hybridization
Topic: Molecular Shape

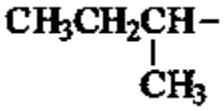
4.What is the IUPAC name of the following compound?



A. 4,4-dimethylpentane
B.1-tert-butylpropane
C.2,2-dimethylpentane
D. 1,1,1-trimethylbutane

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

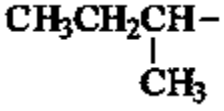
5.The correct IUPAC name of the following compound is



A. 2-ethyl-3,5-dimethylheptane.
B.6-ethyl-5,5-dimethylheptane.
C.3,4,4-trimethyloctane.
D. 5,5,6-trimethyloctane.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

6.The common name of the following group is



A. *n*-butyl
B. *sec*-butyl
C. isobutyl
D. *tert*-butyl

Bloom's Level: 1. Remember
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.16
Subtopic: Alkyl groups
Topic: Alkanes (Acyclic and Cyclic)

7. Which one of the following is 2,2,5-trimethylhexane?

A. $(CH_3)_2CHCH_2C(CH_3)_3$

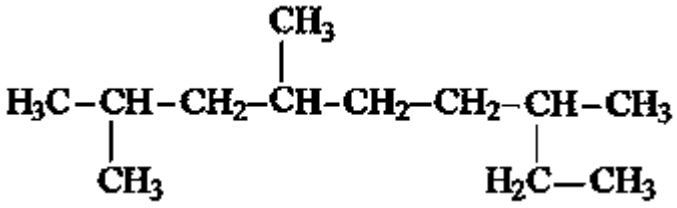
B. $(CH_3)_2CHCH_2CH_2C(CH_3)_3$

C. $CH_3CH_2CH(CH_3)C(CH_3)_3$

D. $(CH_3)_2CHCH_2CH_2CH_2C(CH_3)_3$

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

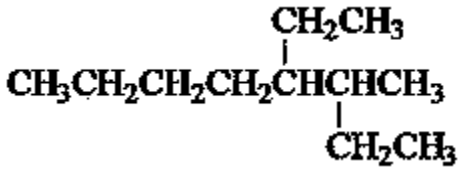
8.The correct IUPAC name of the following is



A. 2,4,7-trimethylnonane.
B. 7-ethyl-2,4-dimethyloctane.
C. 3,6,8-trimethylnonane.
D. 2-ethyl-5,7-dimethyloctane.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

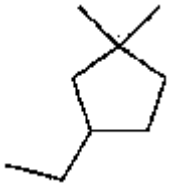
9.What is the IUPAC name of the following?



A. 5,6-diethylhexane
B. 5-ethyl-6-methylheptane
C. 2,3-diethylhexane
D. 4-ethyl-3-methylheptane

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

10.What is the IUPAC name of the following?



A. 1-ethyl-4.4-dimethylcyclopentane
B.1-ethyl-3,3-dimethylcyclopentane
C.3-ethyl-1,1-dimethylcyclopentane
D. 4-ethyl-1,1-dimethylcyclopentane

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.18
Subtopic: IUPAC Nomenclature of cycloalkanes
Topic: Alkanes (Acyclic and Cyclic)

11. Cyclohexane is composed of

A. methine groups.
B.methylene groups.
C.methyl groups.
D. both methine and methylene groups.

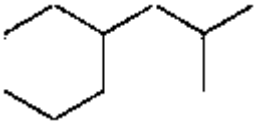
Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.11
Subtopic: IUPAC Nomenclature of cycloalkanes
Topic: Alkanes (Acyclic and Cyclic)

12. All the carbons in cyclopentane are

A. primary carbons.
B.secondary carbons.
C.tertiary carbons.
D. quaternary carbons.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.16
Subtopic: IUPAC Nomenclature of cycloalkanes
Topic: Alkanes (Acyclic and Cyclic)

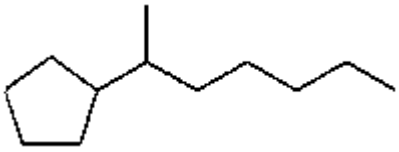
13.The correct name of the following compound is



A. (1-methylpropyl)cyclohexane.
B.(2-methylpropyl)cyclohexane.
C.(2,2-dimethylethyl)cyclohexane.
D. (2,2-dimethylpropyl)cyclohexane.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.18
Subtopic: IUPAC Nomenclature of cycloalkanes
Topic: Alkanes (Acyclic and Cyclic)

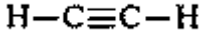
14.The correct IUPAC name of the following compound is



A. (1-methylhexyl)cyclopentane.
B.(1-pentylethyl)cyclopentane.
C.2-cyclopentylheptane.
D. 1-cyclopentyl-2-heptane.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.18
Subtopic: IUPAC Nomenclature of cycloalkanes
Topic: Alkanes (Acyclic and Cyclic)

15.The C-C sigma bond in acetylene is formed by the overlap of which two orbitals?



A. 2p-2p
B. sp-sp
C. sp^2-sp^2
D. sp^3-sp^3

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.09
Subtopic: Hybridization
Topic: Molecular Shape

16. The boiling point of isobutane (-10.2 °C) is lower than *n*-butane (-0.4 °C) because isobutane has

A. weaker intermolecular van der Waals forces.
B. stronger intermolecular van der Waals forces.
C. weaker dipole-dipole attractive forces.
D. stronger dipole-dipole attractive forces.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.21
Subtopic: Intermolecular forces
Topic: Functional Groups

17. Which of the following describes an atom or group of atoms that has similar chemical properties when it occurs in different compounds?

A. hydrocarbon
B. functional group
C. paraffin
D. isomer

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.19
Subtopic: C-Z functional groups (Z = N, O, S, halogen)
Subtopic: Hydrocarbons
Topic: Functional Groups

18. Arrange the following isomeric alkanes in order of increasing boiling point.

I. *n*-heptane

II. 2,3-dimethylpentane

III. 2,2,3-trimethylbutane

A. I < II < III
B. II < III < I
C. III < I < II
D. III < II < I

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.21
Subtopic: Intermolecular forces
Topic: Functional Groups

19. The oxidation states of carbon range from

A. 0 to +2.
B. 0 to +4.
C. -4 to 0.
D. -4 to +4.

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.23
Subtopic: Acyclic vs cyclic
Topic: Alkanes (Acyclic and Cyclic)

20.Which of the following has(have) a higher oxidation state of carbon than the carbon in formaldehyde, $H_2C=O$?

I. CH_3OH

II. HCO_2H

III. H_2CO_3

A. I
B. III
C. II and III
D. I, II, and III

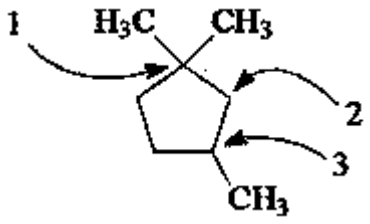
Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.23
Subtopic: Acyclic vs cyclic
Topic: Alkanes (Acyclic and Cyclic)

21. The *tert*-butyl group can also be called

A. 1,1-dimethylpropyl.
B.1,1-dimethylethyl.
C.2,2-dimethylpropyl.
D. 2,2-dimethylethyl.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.16
Subtopic: Alkyl groups
Topic: Alkanes (Acyclic and Cyclic)

22.Carbon atoms 1, 2, and 3 in the following structure are classified, respectively, as



A. tertiary, primary, secondary.
B. quaternary, secondary, secondary.
C. quaternary, primary, tertiary.
D. quaternary, secondary, tertiary.

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.16
Subtopic: Alkyl groups
Topic: Alkanes (Acyclic and Cyclic)

23. Identify the isomer of C_6H_{14} that only has primary and tertiary carbons.

A. hexane
B. 2,2-dimethylbutane
C. 3-methylpentane
D. 2,3-dimethylbutane

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Hard
Gradable: automatic
Section: 02.16
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

24.Why can heats of combustion of constitutional isomers of hydrocarbons be used to measure their stabilities?

I. Combustion of constitutional isomers gives different final states.

II. Combustion of constitutional isomers gives the same final states.

III. Constitutional isomers of hydrocarbons have the same potential energies.

IV. Constitutional isomers of hydrocarbons have different potential energies.

A. only I
B. only II
C. I and III
D. II and IV

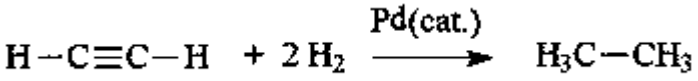
Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.22
Subtopic: Reactions of alkanes
Topic: Alkanes (Acyclic and Cyclic)

25.The heats of combustion ($-\Delta H^\circ$) of heptane and 3,3-dimethypentane are 4,817 and 4,809 kJ/mol, respectively. Which statement is true?

A. Heptane is 8 kJ/mol more stable then 3,3-dimethylpentane.
B. 3,3-Dimethylpentane is 8 kJ/mol more stable than heptane.
C. Stabilities cannot be compared since they are not isomers.
D. Stabilities cannot be compared since they give different combustion products.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.22
Subtopic: Reactions of alkanes
Topic: Alkanes (Acyclic and Cyclic)

26.The reaction of acetylene with hydrogen gas is shown below. Which statements are true concerning the reaction?



I. Acetylene is oxidized to ethane.

II. Acetylene is reduced to ethane.

III. Carbon changes oxidation state from -1 to -3.

IV. Hydrogen (from H_2) changes oxidation state from 0 to +1.

A. I and III
B. II and IV
C. I, III, and IV
D. II, III, and IV

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.23
Subtopic: Reactions of alkanes
Topic: Alkanes (Acyclic and Cyclic)

27. How many methine groups are there in isopropylcyclopentane?

A. one
B. two
C. three
D. four

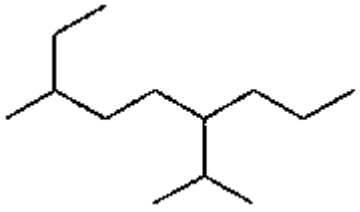
Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.11
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

28. What is the total number of constitutional isomers with the formula C_5H_{12}?

A. two
B. three
C. four
D. five

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.13
Subtopic: Constitutional isomers
Topic: Drawing Organic Molecules

29.What is the IUPAC name of the following?



A. 6-isopropyl-3-methylnonane
B. 2-ethyl-5-isopropyloctane
C. 6-propyl-3-methylnonane
D. 2-ethyl-5-propyloctane

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

30. How many moles of O_2 gas would be consumed in the complete combustion of 0.100 mole of C_5H_{12}?

A. 0.100 mole O_2

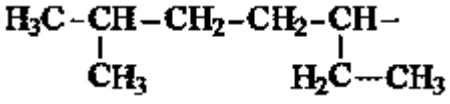
B. 0.400 mole O_2

C. 0.800 mole O_2

D. 1.60 mole O_2

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02
Difficulty: Hard
Gradable: automatic
Section: 02.22
Subtopic: Reactions of alkanes
Topic: Alkanes (Acyclic and Cyclic)

31.The systematic name of the following group is



A. 5-ethyl-2-methylpentyl.

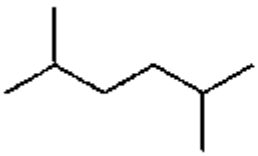
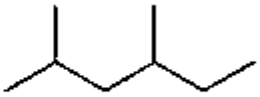
B.1-ethyl-4-methylpentyl.

C.6-methyl-3-heptyl.

D. 2-methyl-5-heptyl.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.16
Subtopic: Alkyl groups
Topic: Alkanes (Acyclic and Cyclic)

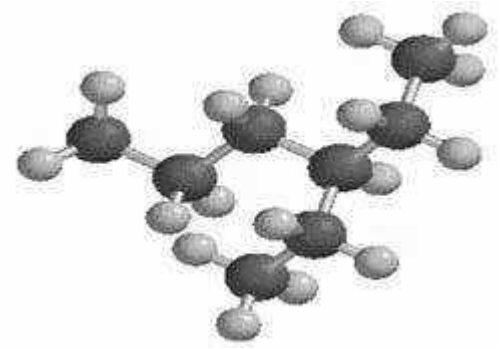
32.What is the relationship between the two structures below?

 and 

A. identical structures
B. resonance forms
C. constitutional isomers
D. different compounds with different compositions

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.11
Subtopic: Constitutional isomers
Topic: Drawing Organic Molecules

33.What is the IUPAC name of the following structure?



A. 3-propylpentane
B. 3-ethylhexane
C. 2-ethylheptane
D. 4-ethylpentane

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.17
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)

34.Which of the following are constitutional isomers?

I. 2,3,3-dimethylhexane

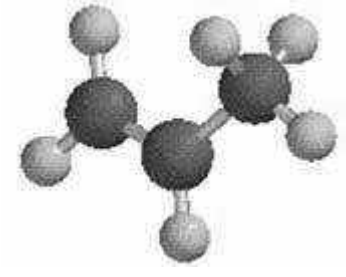
II. 2,2-diethylpentane

III. 3-ethyl-2-methylheptane

A. I and II
B. I and III
C. II and III
D. they are all constitutional isomers

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.11
Subtopic: Constitutional isomers
Subtopic: IUPAC Nomenclature of acyclic alkanes
Topic: Alkanes (Acyclic and Cyclic)
Topic: Drawing Organic Molecules

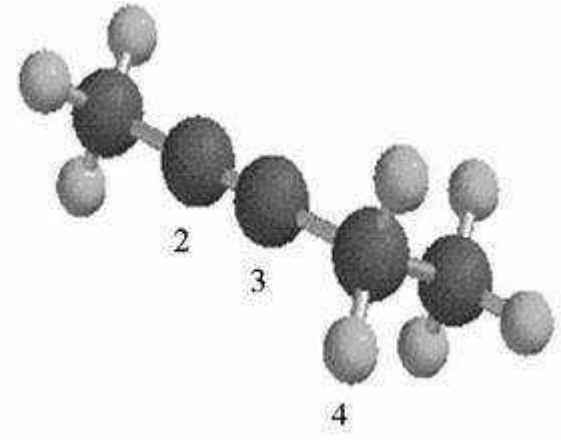
35.What is the estimated C-C-C bond angle in the following model?



A. 90^{o}
B. 109.5^{o}
C. 120^{o}
D. 180^{o}

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Hybridization
Topic: Molecular Shape

36.What are the hybridizations of carbon atoms 2, 3, and 4 shown in the model below?



A. sp, sp^2, sp^2
B. sp, sp^2, sp^3
C. sp, sp, sp^2
D. sp, sp, sp^3

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.09
Subtopic: Hybridization
Topic: Molecular Shape

37.Arrange the following hydrocarbons in order of increasing boiling point.

I. pentane

II. 2,2-dimethylpropane

III. 2-methylbutane

A. I < II < III
B. I < III < II
C. II < I < III
D. II < III < I

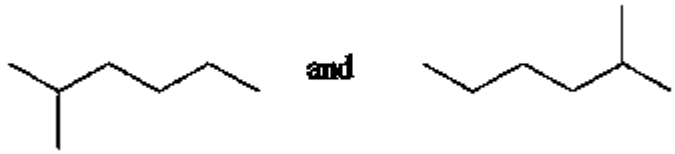
Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.21
Subtopic: Intermolecular forces
Topic: Functional Groups

38. The 1,1-dimethylethyl group, -$C(CH_3)_3$, can also be called

A. butyl.
B. isobutyl.
C. *sec*-butyl.
D. *tert*-butyl.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.16
Subtopic: Alkyl groups
Topic: Alkanes (Acyclic and Cyclic)

39.What is the relationship between the following two structures?



A. identical structures
B. resonance forms
C. constitutional isomers
D. different compounds with different compositions

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.11
Subtopic: Skeletal/bond-line structures
Topic: Drawing Organic Molecules

40. The sp^3 orbitals of carbon in CH_4 are formed from the

A. three 2p orbitals.
B. 2s and two of the 2p orbitals.
C. 2s and one of the 2p orbitals.
D. 2s and the three 2p orbitals.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Hybridization
Topic: Molecular Shape

41. The geometry of sp^3 hybrid orbitals can be described as pointing towards the corners of a

A. triangle.
B. square.
C. tetrahedron.
D. square pyramid.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Hybridization
Topic: Molecular Shape

42. What is the Cl-C-Cl bond angle in CCl_4?

A. 60^o
B. 90^o
C. 109.5^o
D. 120^o

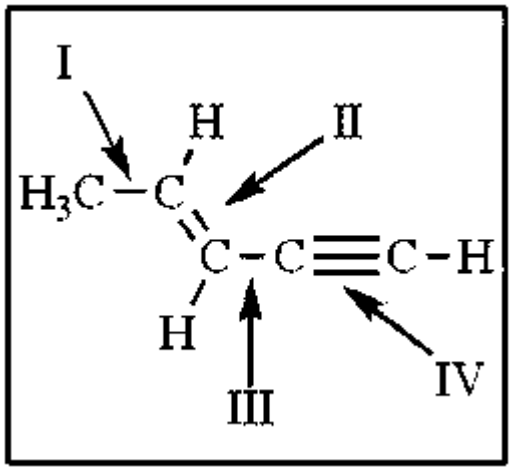
Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Hybridization
Topic: Molecular Shape

43. Which of the following has the lowest boiling point?

A. pentane
B. 2,2-dimethylpropane
C. 2-methylbutane
D. hexane

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.21
Subtopic: Intermolecular forces
Topic: Functional Groups

44.The shortest and longest carbon-carbon bonds, respectively, in this molecule are:



A. II and III
B. IV and III
C. I and IV
D. IV and I

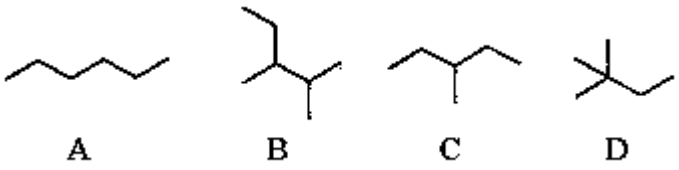
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Bond properties
Subtopic: Types of bonds
Topic: Structure and Bonding

45. How many isomers of C_6H_{14} are possible?

A. four
B. five
C. six
D. seven

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.15
Subtopic: Constitutional isomers
Topic: Drawing Organic Molecules

46.Which of the molecules below is NOT an isomer of formula C_6H_{14}?



A. A
B. B
C. C
D. D

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.18
Subtopic: Constitutional isomers
Subtopic: Skeletal/bond-line structures
Topic: Drawing Organic Molecules

47. Which of the following statements is not true concerning hydrocarbons?

A. Hydrocarbons are compounds that carbon, hydrogen, and oxygen atoms.
B. Alkanes, alkenes, and alkynes are examples of aliphatic hydrocarbons.
C. Aromatic hydrocarbons are also referred to as arenes.
D. Hydrocarbons may contain sigma bonds and/or pi bonds.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.01
Subtopic: Alkanes
Subtopic: Alkenes
Subtopic: Alkynes
Subtopic: Arenes (Aromatics)
Subtopic: Hydrocarbons
Topic: Functional Groups

48. How many isomers of C_4H_9Cl are possible?

A. two
B. three
C. four
D. five

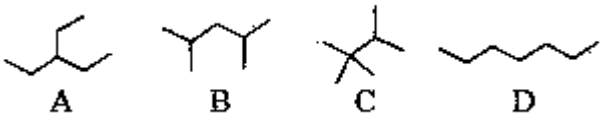
Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.11
Subtopic: Constitutional isomers
Topic: Drawing Organic Molecules

49. The smallest straight-chain alkane that is liquid at room temperature and atmospheric pressure is

A. propane.
B. butane.
C. pentane.
D. hexane.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.21
Subtopic: Intermolecular forces
Topic: Functional Groups

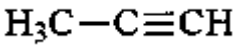
50.The lowest-boiling isomer of C_7H_{16} would be



A. A.
B. B.
C. C.
D. D.

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.21
Subtopic: Intermolecular forces
Topic: Functional Groups

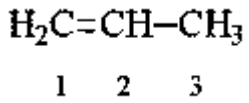
51.The C-C-C bond angle in propyne, shown below, is



A. 90°.
B. 109.5°.
C. 120°.
D. 180°.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.09
Subtopic: Hybridization
Topic: Molecular Shape

52.The hybridization of carbon atoms 1, 2, and 3 in the following are respectively,



A. sp, sp, and sp^2.

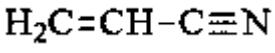
B.sp, sp, and sp^3.

C.sp^2, sp^2, and sp^3.

D. sp^2, sp^3, and sp^3.

Bloom's Level: 3. Apply
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Hybridization
Topic: Molecular Shape

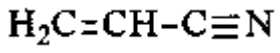
53.How many *pi* bonds are present in the following structure?



A. one
B. two
C. three
D. four

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Easy
Gradable: automatic
Section: 02.09
Subtopic: Hybridization
Topic: Molecular Shape

54.The carbon-carbon single bond in the following is formed by the overlap of which two orbitals?



A. sp-sp
B. sp^2-sp^2
C. sp^2-sp^2
D. sp^2-sp^3

Bloom's Level: 2. Understand
Chapter: 02
Difficulty: Medium
Gradable: automatic
Section: 02.09
Subtopic: Hybridization
Topic: Molecular Shape

Chapter 2 - Alkanes and Cycloalkanes: Introduction to Hydrocarbons (Test Bank) Summary

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Bloom's Level: 2. Understand	25
Bloom's Level: 3. Apply	20
Bloom's Level: 4. Analyze	4
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Difficulty: Easy	8
Difficulty: Hard	2
Difficulty: Medium	44
Gradable: automatic	54
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Section: 02.05	1
Section: 02.06	2
Section: 02.07	1
Section: 02.08	4
Section: 02.09	5
Section: 02.11	6
Section: 02.13	1
Section: 02.15	1
Section: 02.16	7
Section: 02.17	7
Section: 02.18	5
Section: 02.19	1
Section: 02.21	6
Section: 02.22	3
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Subtopic: Alkenes	1
Subtopic: Alkyl groups	5
Subtopic: Alkynes	1
Subtopic: Arenes (Aromatics)	1
Subtopic: Bond properties	1

Subtopic: C-Z functional groups (Z = N, O, S, halogen)	1
Subtopic: Constitutional isomers	6
Subtopic: Hybridization	11

Subtopic: Hydrocarbons	4
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Subtopic: IUPAC Nomenclature of cycloalkanes	5
Subtopic: Reactions of alkanes	4
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Topic: Alkanes (Acyclic and Cyclic)	28
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Topic: Functional Groups	10
Topic: Molecular Shape	11
Topic: Structure and Bonding	1