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**1. chem10b 25.2-33**

Consider the following types of compounds:

(i) amino acid

(ii) nitrogen-containing organic base

(iii) phosphoric acid

(iv) five-carbon sugar

Which of the above compounds are the monomers of nucleic acids, called nucleotides?

Student Response	Correct Answer
A. none	
B. (i) and (ii)	
C. (ii) and (iv)	
D. (ii), (iii), and (iv)	
E. all	

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**2. chem10b 25.1-24**

In general, \_\_\_\_\_ are the most reactive hydrocarbons.

Student Response	Value	Correct Answer
<input checked="" type="checkbox"/> A. alkynes	100%	<input checked="" type="checkbox"/>
B. cycloalkanes	0%	
C. alkanes	0%	
D. alkenes	0%	
E. olefins	0%	

Score: 1/1

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**3. chem10b 25.2-13**

During World War II, Teflon™ was used \_\_\_\_\_.

Student Response	Correct Answer
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A. to form the tube to keep the separate parts of the critical mass apart until the time for detonation of the bomb
B. because its characteristic color change upon exposure to radiation made it an excellent indicator of radiation leaks
C. to package the shrapnel incorporated into the atomic bomb
D. as a liner inside the atomic bomb to protect the guidance system from radiation
E. as gasket material in the gaseous diffusion plant for separation of uranium isotopes

**4. chem10b 25.2-4**

How many isomers are possible for  $C_5H_{12}$ ?

Student Response	Correct Answer
A. 1	
B. 2	
C. 3	
D. 4	
E. 10	

**5. chem10b 25.1-42**

\_\_\_\_\_ acts as a kind of energy bank in the body, and is found concentrated in muscles and liver.

Student Response	Correct Answer
A. Lactose	
B. Cellulose	
C. Sucrose	
D. Glycogen	
E. Starch	

**6. chem10b 25.1-13**

The general formula of an alkane is \_\_\_\_\_.

Student Response	Correct Answer
A. $C_nH_{2n+2}$	
B. $C_nH_n$	
C. $C_nH_{2n-2}$	
D. $C_{2n}H_{2n+2}$	
E. $C_nH_{2n}$	

**7. chem10b 25.1-23**

\_\_\_\_\_ could be the formula of an alkene.

Student Response	Correct Answer
A. $C_3H_6$	
B. $CH_8$	
C. $C_6H_6$	
D. $C_3H_8$	
E. $C_{17}H_{36}$	

**8. chem10b 25.2-31**

The principal difference between fructose and glucose is that \_\_\_\_\_.

Student Response	Correct Answer
A. fructose is a monosaccharide and glucose is a disaccharide	
B. fructose is a disaccharide and glucose is a monosaccharide	
C. glucose is chiral and fructose is not	
D. fructose is a ketone sugar and glucose is an aldehyde sugar	
E. fructose is chiral and glucose is not	

**9. chem10b 25.2-28**

Which of the following contains a peptide linkage?

Student Response	Correct Answer
A. $\begin{array}{c} \text{O} \\    \\ \text{R}-\text{C}-\text{N}-\text{R}' \\   \\ \text{H} \end{array}$	
B.	
C.	
D.	
E. none of the above	

**10. chem10b 25.1-10**

The minimum number of carbons necessary for a hydrocarbon to form a branched structure is \_\_\_\_\_.

Student Response	Correct Answer
A. 12	
B. 3	
C. 4	
D. 9	
E. 6	

**11. chem10b 25.1-4**

The melting and boiling points of hydrocarbons are determined by \_\_\_\_\_.

Student Response	Correct Answer
A. hydrogen bonding	
B. ion-dipole attraction	
C. dipole-dipole attraction	
D. London forces	
E. ionic bonding	

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**12. chem10b 25.2-19**

Which of the following compounds do not contain an  $sp^3$  hybridized oxygen atom?

Student Response	Correct Answer
A. water	
B. alcohols	
C. ketones	
D. ethers	
E. esters	

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**13. chem10b 25.1-34**

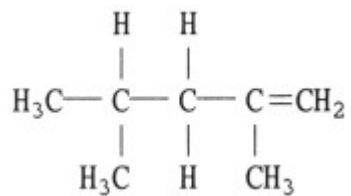
$CH_3CH_2C(=O)NH_2$  is called a(n) \_\_\_\_\_.

Student Response	Correct Answer
A. aldehyde	
B. ketone	
C. ester	
D. amide	
E. amine	

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**14. chem10b 25.1-16**

What is the name of the compound below \_\_\_\_\_?



Student Response	Correct Answer
A. 2,5-dimethylpentane	
B. 2,4-dimethyl-1-pentene	
C. 2,4-ethylbutene	

D. 2,4-dimethyl-4-pentene

E. 2,4-methylbutene

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**15. chem10b 25.1-33**

The general formula of an ester is \_\_\_\_\_.

Student Response	Correct Answer
A. R-CO-OR'	
B. R-CO-R'	
C. R-O-R'	
D. R-CO-OH	
E. R-OH	

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**16. chem10b 25.1-6**

Alkynes always contain a \_\_\_\_\_.

Student Response	Correct Answer
A. C-C bond	
B. C=C bond	
C. C=H bond	
D. C≡H bond	
E. C≡C bond	

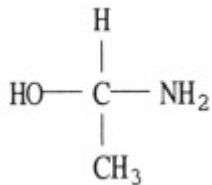
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**17. chem10b 25.2-25**

Which one of the following molecules is chiral?

Student Response	Correct Answer
A.	
B.	
C.	

D.



E.

**18. chem10b 25.2-17**

Which one of the following compounds is an isomer of  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ ?

Student Response	Correct Answer
A. $\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_3$	
B. $\text{CH}_3\text{OH}$	
C.	
D.	
E. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$	

**19. chem10b 25.1-2**

What general class of compounds is also known as olefins \_\_\_\_\_?

Student Response	Correct Answer
A. aromatics	
B. alkanes	
C. alkenes	
D. ketones	
E. alkynes	

**20. chem10b 25.1-37**

Optically active molecules that are mirror images of each other are called \_\_\_\_\_.

Student Response	Correct Answer
A. enantiomers	
B. chiral compounds	
C. geometrical isomers	
D. cofactors	
E. allotropes	

**2. hem10b 25.2-17**

Which one of the following compounds is an isomer of  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ ?

Student Response	Correct Answer
A.	
B. $\text{CH}_3\text{OH}$	
C. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$	
D.	
E. $\begin{array}{c} \text{CH}_3\text{CH}_2\text{CHCH}_3 \\   \\ \text{OH} \end{array}$	

**3. chem10b 25.1-37**

Optically active molecules that are mirror images of each other are called \_\_\_\_\_.

Student Response	Correct Answer
A. chiral compounds	
B. enantiomers	
C. geometrical isomers	
D. allotropes	
E. cofactors	



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**4. chem10b 25.1-40**

Starch, glycogen, and cellulose are made of repeating units of \_\_\_\_\_.

Student Response	Correct Answer
A. sucrose	
B. lactose	
C. glucose	
D. amino acids	
E. fructose	

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**5. chem10b 25.1-33**

The general formula of an ester is \_\_\_\_\_.

Student Response	Correct Answer
A. R CO OR'	
B. R CO R'	
C. R CO OH	
D. R O R'	
E. R OH	

---

**6. chem10b 25.1-39**

The secondary structure of a protein is the result of \_\_\_\_\_ bonding.

Student Response	Correct Answer
A. hydrogen	
B. ionic	
C. peptide	
D. covalent	
E. none of the above	

---

**7. chem10b 25.2-16**

Which one of the following is not an alcohol?

Student Response	Correct Answer
A. ethanol	
B. ethylene glycol	
C. cholesterol	
D. glycerol	
E. acetone	

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**8. chem10b 25.4-6**

A carbon with three or more attached groups will be chiral.

Student Response	Value	Correct Answer

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**9. chem10b 25.4-1**

The overall polarity of organic molecules is high.

Student Response	Value	Correct Answer

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**10. chem10b 25.1-18**

Gasoline and water do not mix because gasoline is \_\_\_\_\_.

Student Response	Correct Answer
A. volatile and water is not	
B. polar and water is nonpolar	
C. nonpolar and water is polar	
D. less dense than water	

E. less viscous than water

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**11. chem10b 25.1-26**

Aromatic hydrocarbons \_\_\_\_\_.

Student Response	Correct Answer
A. undergo substitution reactions more easily than saturated hydrocarbons	
B. are stabilized by resonance	
C. have $sp^2$ hybridized carbon atoms	
D. contain a series of $\pi$ bonds on several consecutive carbon atoms	
E. readily undergo addition reactions like alkenes	

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**12. chem10b 25.4-10**

The DNA double helix is held together by hydrogen bonds and London dispersion forces.

Student Response	Value	Correct Answer

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**1. chem10b 25.2-31**

The principal difference between fructose and glucose is that \_\_\_\_\_.

Student Response	Correct Answer
A. fructose is a disaccharide and glucose is a monosaccharide	
B. fructose is chiral and glucose is not	
C. fructose is a ketone sugar and glucose is an aldehyde sugar	
D. fructose is a monosaccharide and glucose is a disaccharide	
E. glucose is chiral and fructose is not	

---

**3. chem10b 25.1-13**

The general formula of an alkane is \_\_\_\_\_.

Student Response	Correct Answer
A. $C_nH_{2n-2}$	
B. $C_nH_{2n+2}$	
C. $C_nH_n$	
D. $C_nH_{2n}$	
E. $C_{2n}H_{2n+2}$	

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**4. chem10b 25.1-20**

Isooctane is assigned an octane number of 100, whereas \_\_\_\_\_ is assigned an octane number of 0.

Student Response	Correct Answer
A. benzene	
B. heptane	
C. methane	
D. nitrous oxide	
E. propane	

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**5. chem10b 25.2-15**

Consider the following statements about alcohols:

- (i) Alcohols contain a polar O-H bond and hence mix well with polar solvents like water.
  - (ii) Alcohols form hydrogen bonds with water.
  - (iii) Alcohols have a higher boiling point compared to hydrocarbons with the same number of carbon atoms.
  - (iv) For the most part, alcohols are toxic.
- Which statement(s) is(are) true?

Student Response	Correct Answer
A. none	
B. (i) and (ii)	

C. (iii) only

D. (i), (ii), and (iv)

E. all

---

**6. chem10b 25.2-26**

How many chiral carbon atoms does the neopentane (2, 2 - dimethylpropane) have?

Student Response	Correct Answer
A. 0	
B. 1	
C. 2	
D. 3	
E. 4	

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**7. chem10b 25.2-32**

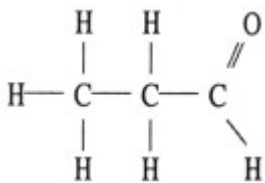
Which one of the following is a monosaccharide?

Student Response	Correct Answer
A. lactose	
B. sucrose	
C. fructose	
D. maltose	
E. none of the above	

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**8. chem10b 25.2-20**

Of the compounds below, \_\_\_\_\_ is an isomer of



Student Response	Correct Answer
A.	
B.	
C.	
D.	$  \begin{array}{ccccc}  & \text{H} & \text{O} & \text{H} & \\  &   &    &   & \\  \text{H} & - \text{C} & - \text{C} & - \text{C} & - \text{H} \\  &   & &   & \\  & \text{H} & & \text{H} &   \end{array}  $
E.	

**9. chem10b 25.2-29**

Sugars are examples of what type of molecule?

Student Response	Correct Answer
A. salts	
B. carbohydrates	
C. proteins	
D. amino acids	
E. nucleic acids	

**10. chem10b 25.1-39**

The secondary structure of a protein is the result of \_\_\_\_\_ bonding.

Student Response	Correct Answer
A. hydrogen	
B. ionic	
C. peptide	
D. covalent	
E. none of the above	

**11. chem10b 25.1-2**

What general class of compounds is also known as olefins \_\_\_\_\_?

Student Response	Correct Answer
A. aromatics	
B. alkenes	
C. alkanes	
D. alkynes	
E. ketones	

---

**12. chem10b 25.2-1**

Which one of the following could be a cyclic alkane?

Student Response	Correct Answer
A. C <sub>4</sub> H <sub>6</sub>	
B. C <sub>3</sub> H <sub>6</sub>	
C. C <sub>5</sub> H <sub>5</sub>	
D. C <sub>2</sub> H <sub>6</sub>	
E. C <sub>9</sub> H <sub>20</sub>	

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**1. chem10b 25.2-27**

Proteins are biopolymers formed via multiple condensation coupling of which two functional groups?

Student Response	Correct Answer
A. amine and carboxylic acid	
B. alcohol and carboxylic acid	
C. ester and carboxylic acid	
D. ester and amine	
E. alcohol and amine	

Score: 1/1

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**2. chem10b 25.1-25**

The addition of HBr to 2-butene produces \_\_\_\_\_.

Student Response	Correct Answer
A. 2,3-dibromobutane	
B. no reaction	
C. 2-bromobutane	
D. 1-bromobutane	
E. 1,2-dibromobutane	

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**4. chem10b 25.1-12**

How many structural isomers of heptane exist \_\_\_\_\_?

Student Response	Correct Answer
A. 2	
B. 4	
C. 6	
D. 8	
E. 10	

---

**5. chem10b 25.2-10**

Which statement about hydrocarbons is false?

Student Response	Correct Answer
A. Alkanes can be produced by hydrogenating alkenes.	
B. Cyclic alkanes are structural isomers of alkenes.	
C. Alkenes can be polymerized.	
D. Alkanes are more reactive than alkenes.	



E. The smallest alkane to have structural (constitutional) isomers has 4 carbon atoms.

---

**6. chem10b 25.2-3**

How many isomers are possible for  $C_4H_{10}$ ?

Student Response	Correct Answer
A. 1	
B. 2	
C. 3	
D. 4	
E. 10	

---

**7. chem10b 25.1-19**

Which substance would be the most soluble in gasoline \_\_\_\_\_?

Student Response	Correct Answer
A. HCl	
B. water	
C. hexane	
D. NaCl	
E. $NaNO_3$	

---

**8. chem10b 25.2-6**

When petroleum is distilled to separate the components by boiling point, the component with the highest boiling point is called \_\_\_\_\_.

Student Response	Correct Answer
A. gasoline	
B. asphalt	

C. kerosene

D. paraffin

E. gas

**9. chem10b 25.4-3**

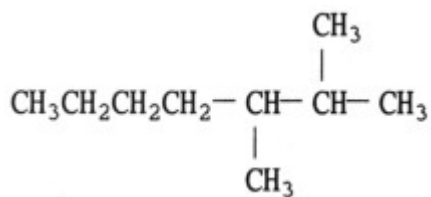
The rate law for the addition of a halogen to an alkene is first order.

Student Response	Value	Correct Answer

**10. chem10b 25.2-5**

The structure of 2,3-dimethylheptane is \_\_\_\_\_.

Student Response	Correct Answer
A.	
B.	
C.	
D.	
E.	



**11. chem10b 25.2-4**

How many isomers are possible for C<sub>5</sub>H<sub>12</sub>?

Student Response	Correct Answer
A. 1	
B. 2	

C. 3
D. 4
E. 10

---

**12. chem10b 25.2-26**

How many chiral carbon atoms does the neopentane (2, 2 - dimethylpropane) have?

Student Response	Correct Answer
A. 0	
B. 1	
C. 2	
D. 3	
E. 4	

---

**1. chem10b 25.1-12**

How many structural isomers of heptane exist \_\_\_\_\_?

Student Response	Correct Answer
A. 2	
B. 4	
C. 6	
D. 8	
E. 10	

---

**2. chem10b 25.1-22**

The name of  $\text{CH}_3\text{-CH}=\text{C}=\text{CH-CH-CH}=\text{CH-CH}_3$  is \_\_\_\_\_.

Student Response	Correct Answer
A. 3, 5, 6 - octatriene	
B. 3, 4, 7 - octatriene	
C. 2, 3, 6 - octatriene	
D. 2, 3, 5 - octatriene	
E. 2, 5, 6 - octatriene	

Score: 1/1

**3. chem10b 25.2-23**

Which structure below represents an ether?

Student Response	Correct Answer
A.	
B.	
C.	
D.	
E. $\text{CH}_3\text{CH}_2 - \text{O} - \text{CH}_2\text{CH}_3$	

**4. chem10b 25.1-1**

Hydrocarbons containing only single bonds between the carbon atoms are called \_\_\_\_\_.

Student Response	Correct Answer
A. ketones	
B. alkenes	
C. alkynes	
D. alkanes	
E. aromatics	

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**5. chem10b 25.4-2**

Cyclobutane is more reactive butane .

Student Response	Value	Correct Answer

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**6. chem10b 25.2-10**

Which statement about hydrocarbons is false?

Student Response	Correct Answer
A. Alkanes can be produced by hydrogenating alkenes.	
B. Cyclic alkanes are structural isomers of alkenes.	
C. Alkanes are more reactive than alkenes.	
D. The smallest alkane to have structural (constitutional) isomers has 4 carbon atoms.	
E. Alkenes can be polymerized.	

---

**7. chem10b 25.2-25**

Which one of the following molecules is chiral?

Student Response	Correct Answer
A.	
B.	
C.	
D.	
E. $\begin{array}{c} \text{H} \\   \\ \text{HO}-\text{C}-\text{NH}_2 \\   \\ \text{CH}_3 \end{array}$	

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**8. chem10b 25.1-23**

\_\_\_\_\_ could be the formula of an alkene.

Student Response	Correct Answer
A. C <sub>6</sub> H <sub>6</sub>	
B. C <sub>17</sub> H <sub>36</sub>	
C. CH <sub>8</sub>	
D. C <sub>3</sub> H <sub>6</sub>	
E. C <sub>3</sub> H <sub>8</sub>	

---

**9. chem10b 25.2-32**

Which one of the following is a monosaccharide?

Student Response	Correct Answer
A. lactose	
B. sucrose	
C. fructose	
D. maltose	
E. none of the above	

---

**10. chem10b 25.1-37**

Optically active molecules that are mirror images of each other are called \_\_\_\_\_.

Student Response	Correct Answer
A. enantiomers	
B. chiral compounds	
C. allotropes	
D. geometrical isomers	
E. cofactors	

---


**11. chem10b 25.2-12**

Benzene behaves differently from a hydrocarbon which simply contains three C=C bonds in that the latter would be expected to react much more readily with \_\_\_\_\_.

Student Response	Correct Answer
A. Br <sub>2</sub>	
B. Cl <sub>2</sub>	
C. HCl	
D. H <sub>2</sub>	
E. all of the above	

**12. chem10b 25.2-2**

If each of the following represents an alkane, and a carbon atom is located at each vertex with the proper number of hydrogen atoms also bonded to it, which one is the most reactive?

Student Response	Correct Answer
A.	
B.	
C. 	
D.	
E. They are all equally reactive since they are all alkanes.	