

Chapter 002 - The Chemistry of Life

Multiple Choice Questions

1. Which of the following is not a true statement?
 - A. Nitric oxide consists of one atom of nitrogen and one atom of oxygen
 - B. Nitric oxide is a gas
 - C. Nitric oxide passes freely into and out of cells
 - D. Nitric oxide is a harmful substance found in smog and acid rain
 - E. Nitric oxide has no true function in living organisms
2. The primary elements making up living organisms are:
 - A. Carbon, hydrogen, oxygen, calcium, iron, and iodine
 - B. Carbon, oxygen, iron, chlorine, sulfur, and phosphorous
 - C. Carbon, hydrogen, iron, sulfur, sodium, and calcium
 - D. Carbon, hydrogen, oxygen, sulfur, nitrogen, and phosphorous
 - E. Carbon, oxygen, sulfur, calcium, iron, and phosphorous
3. The atomic number of an atom or element is:
 - A. The number of neutrons in the nucleus
 - B. The number of electrons in the nucleus
 - C. The number of protons in the nucleus
 - D. The number of neutrons in the orbitals
 - E. The number of protons in the orbitals
4. An ion is:
 - A. An atom that has gained electrons
 - B. An atom that has a positive charge
 - C. An atom that has lost electrons
 - D. An atom that has a negative charge
 - E. All are correct

5. The mass number of an atom is defined as:
- A. The total number of protons, neutrons, and electrons of an atom
 - B. The total number of protons and electrons of an atom
 - C. The total number of protons and neutrons of an atom
 - D. The total number of neutrons and electrons of an atom
 - E. The total number of protons of an atom
6. Isotopes of the same element are different from one another in that:
- A. They have a different number of protons
 - B. They have a different number of neutrons
 - C. They have a different number of electrons
7. The first energy shell of an atom contains a maximum of:
- A. One electron
 - B. Two electrons
 - C. Four electrons
 - D. Eight electrons
 - E. Sixteen electrons
8. If an atom has a valence shell that is full it:
- A. Is highly reactive
 - B. Is not chemically stable
 - C. Is highly likely to combine with other atoms
 - D. Is not inert
 - E. Is chemically stable
9. The second energy shell of an atom contains a maximum of:
- A. Eight electrons
 - B. Two electrons
 - C. Four electrons
 - D. One electron
 - E. Sixteen electrons
10. In a covalent bond:
- A. Atoms share electrons
 - B. Atoms of opposite charges attract each other
 - C. Atoms share a proton

11. An ionic bond is a bond in which:
- A. Atoms share electrons
 - B. Atoms share a proton
 - C. Atoms of opposite charges attract each other
12. In the example of ionic bond formation between sodium and chlorine, which of the following is not a true statement?
- A. Na is the chemical symbol for sodium
 - B. Chlorine donates an electron
 - C. Sodium donates an electron
 - D. Sodium becomes positively charged
 - E. The bond that is formed is a strong bond
13. In the example of ionic bond formation between sodium and chlorine:
- A. Na is the chemical symbol for chlorine
 - B. Sodium accepts an electron
 - C. Chlorine accepts an electron
 - D. Chlorine becomes positively charged
 - E. Both sodium accepts an electron and chlorine becomes positively charged are correct
14. If a covalent bond is polar:
- A. Electrons are not shared by atoms
 - B. Protons are shared by atoms
 - C. The bond is not important to living cells
 - D. One of the atoms has a partial negative charge
 - E. The bond is not a strong bond
15. A hydrogen bond:
- A. Is a strong bond
 - B. Does not occur within a molecule
 - C. May occur between molecules
 - D. Is not important to living cells
 - E. Usually has a hydrogen atom with a partial negative charge

16. Evaporation is:

- A. The conversion of a liquid into a vapor
- B. The conversion of a solid into a vapor
- C. The conversion of a vapor into a liquid
- D. The conversion of a vapor into a solid
- E. All are correct

17. Ice floats on water because:

- A. The molecules are closer together in ice than in water
- B. The molecules are farther apart in ice than in water
- C. Ice is more dense than water

18. In a chemical equation:

- A. The reactants are on the right of the yields arrow
- B. Reactants and products are on both sides of the yields arrow
- C. The products are on the left of the yields arrow
- D. The reactants are on the left of the yields arrow
- E. The number of atoms of each element may be different on the two sides of the yields arrow

19. An acid:

- A. Has a value above seven on the pH scale
- B. Is a chemical that takes hydrogen ions from a solution
- C. Has a value of seven on the pH scale
- D. Is a chemical that adds hydrogen ions to a solution
- E. All are correct

20. A base:

- A. Has a value of 7 on the pH scale
- B. Is a chemical that adds hydrogen ions to a solution
- C. Is a chemical that absorbs hydrogen ions from a solution
- D. Has a value below 7 on the pH scale

21. A substance having a pH of 2 would best be described as:

- A. Neutral
- B. A weak acid
- C. A weak base
- D. A strong base
- E. A strong acid

22. A substance having a pH of 6 would best be described as:

- A. A weak acid
- B. Neutral
- C. A weak base
- D. A strong acid
- E. A strong base

23. A substance having a pH of 7 would best be described as:

- A. A weak acid
- B. A weak base
- C. Neutral
- D. A strong acid
- E. A strong base

24. A substance having a pH of 8 would best be described as:

- A. Neutral
- B. A weak base
- C. A weak acid
- D. A strong acid
- E. A strong base

25. A substance having a pH of 13 would best be described as:

- A. A weak acid
- B. A weak base
- C. Neutral
- D. A strong acid
- E. A strong base

26. Organic molecules are defined as chemical compounds that contain:

- A. Carbon
- B. Carbon and oxygen
- C. Carbon and nitrogen
- D. Carbon, hydrogen, and nitrogen
- E. Carbon and hydrogen

27. The four major groups of organic compounds are:

- A. Fats, waxes, carbohydrates, and amino acids
- B. Carbohydrates, lipids, steroids, and monosaccharides
- C. Lipids, fats, waxes, and steroids
- D. Carbohydrates, lipids, proteins, and nucleic acids
- E. Carbohydrates, proteins, amino acids, and nucleic acids

28. A process by which cells build large molecules from monomers is:

- A. Hydrolysis
- B. Reproduction
- C. Condensation
- D. All are correct

29. A process by which cells break polymers down into smaller units is:

- A. Hydrolysis
- B. Condensation
- C. Reproduction
- D. All are correct

30. Examples of monosaccharides are:

- A. Glucose, maltose, and cellulose
- B. Glucose, lactose, and maltose
- C. Glucose, galactose, and fructose
- D. Glucose, lactose, and cellulose
- E. None of these are correct

31. Which is not a lipid?

- A. A triglyceride
- B. A phospholipid
- C. A wax
- D. A sterol
- E. A starch molecule

32. The primary building block (monomer) of proteins is:

- A. A glucose molecule
- B. A fatty acid
- C. A nucleotide
- D. An amino acid
- E. Four interconnected rings

33. An amino acid contains:

- A. Nitrogen
- B. Nitrogen and carbon
- C. Carbon
- D. Phosphorous
- E. Carbon and phosphorous

34. A peptide bond:

- A. Is an ionic bond in proteins
- B. Is a covalent bond in carbohydrates
- C. Is a covalent bond in proteins
- D. Is an ionic bond in carbohydrates

35. The primary building block (monomer) of nucleic acids is:

- A. A nucleotide
- B. A glucose molecule
- C. A fatty acid
- D. An amino acid
- E. Four interconnected rings

36. The three major components in a nucleotide are:

- A. Glucose, a nitrogen base, and a phosphate group
- B. Glucose, a fatty acid, and glycerol
- C. A nitrogen base, a six carbon sugar, and a phosphate group
- D. A nitrogen base, a five carbon sugar, and a phosphate group
- E. A carboxyl group, an R group, and an amino group

37. The four nitrogen bases found in RNA are:

- A. Adenine, thymine, guanine, and uracil
- B. Adenine, cytosine, guanine, and uracil
- C. Adenine, thymine, cytosine, and uracil
- D. Thymine, cytosine, guanine, and uracil
- E. None of these are correct

38. Water is best described as which of the following?

- A. An ion
- B. A non-polar molecule
- C. An atom
- D. A polar molecule
- E. An element

39. Individual water molecules bind to each other through:

- A. Covalent bonds
- B. Ionic bonds
- C. Hydrogen bonds
- D. Hydrophobic bonds
- E. Non-polar bonds

40. Within a single molecule of water, _____ bonds are formed between oxygen and hydrogen?

- A. Ionic bonds
- B. Covalent bonds
- C. Hydrogen bonds
- D. Hydrophobic bonds
- E. Nuclear bonds

41. The term pH refers to:

- A. $[H^+]^2$
- B. $[H^+]$
- C. $-\log[H^+]$
- D. $-[H^+]$
- E. $\log[H^+]$

42. You can painlessly wade into a pool, but doing a belly flop off of the high diving board hurts because of _____ in water.
- A. Water's high density
 - B. Adhesion
 - C. Water's high boiling point
 - D. A neutral pH
 - E. Cohesion
43. Trees take up water hundreds of feet away by:
- A. Water's high density
 - B. Cohesion
 - C. Water's high boiling point
 - D. Adhesion
 - E. A neutral pH
44. Sugars (CH₂O)_n dissolve well in water because sugars form _____ bonds with water.
- A. Covalent bonds
 - B. Ionic bonds
 - C. Hydrogen bonds
 - D. Hydrophobic bonds
 - E. Non-polar bonds
45. Blood pH is closely maintained at a pH of 7.4. A patient whose blood pH drops below 7.35 is suffering from metabolic acidosis and can go into a coma. What happens to the concentration of H⁺ ions in a patient with a blood pH of 6.4?
- A. H⁺ concentration is decreased 10-fold
 - B. H⁺ concentration is decreased 2-fold
 - C. H⁺ concentration is increased 2-fold
 - D. H⁺ concentration is decreased 4-fold
 - E. H⁺ concentration is increased 10-fold

Scientists use carbon dating to determine the age of fossils. ¹⁴C is a rare isotope of carbon that has a half life of 5730 years and decays into ¹⁴N. By measuring the amount of ¹⁴C remaining in a fossil, scientists can estimate when the organism died out to about 60,000 years. The atomic number of C is 6, and of N is 7.

46. ^{14}C and ^{14}N are both:

- A. Atoms
- B. Molecules
- C. Compounds
- D. Polymers
- E. Ions

47. The most common isotope of carbon is ^{12}C . ^{14}C will have ____ than ^{12}C .

- A. More protons
- B. More neutrons
- C. Fewer neutrons
- D. Fewer protons
- E. More electrons

48. When ^{14}C decays to ^{14}N the number of protons ____ and the number of neutrons ____.

- A. Decreases by 1; increases by 1
- B. Stays the same; increases by 1
- C. Increases by 1; stays the same
- D. Increases by 1; decreases by 1
- E. Decreases by 1; stays the same

49. ^{14}C and ^{14}N have the same:

- A. Atomic number
- B. Number of protons
- C. Atomic mass
- D. Number of neutrons
- E. Number of electrons

50. If a fossil has only 25% of its ^{14}C remaining, how old is it?

- A. 5,730 years
- B. 2,865 years
- C. 1,432.5 years
- D. 22,920 years
- E. 11,460 years

51. Many digestive enzymes are hydrolases. What do these enzymes have in common?

- A. They use water to form bonds between monomers
- B. They use water to break bonds in monomers
- C. They use water to break bonds in polymers
- D. They use water to form bonds between polymers
- E. They release water in forming bonds between monomers

52. ____ bonds are formed between monomers to form a polymer.

- A. Ionic bonds
- B. Covalent bonds
- C. Hydrogen bonds
- D. Hydrophobic bonds
- E. Nuclear bonds

53.

In making beer, barley is partially fermented to produce malt. Barley is not sweet, but the malt is. What is the best explanation for this observation?

A. Fermentation allows the barley to make simple sugars from sunlight and carbon dioxide

B. Fermentation releases sugars stored

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E. Fermentation
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54.

Saturated fats have long straight tails of fatty acids, while unsaturated fats have kinks in their tails due to double bonds. These kinks prevent the fats from packing together as tightly. Animals that are ectothermic (cold blooded) need to keep their membranes fluid at cooler temperature and thus use _____ in their membranes.

A. Mostly unsaturated fats

B. Mostly saturated fats

C. Equal amounts of saturated and unsaturated fats

D. Carbohydrates

E. Proteins

55.

Saturated fats have long straight tails of fatty acids, while unsaturated fats from vegetables have kinks in their tails due to double bonds. These kinks prevent the fats from packing together as tightly. Hydrogenated vegetable oils have hydrogens added back to the double bonds and thus behave like ____.

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56.

The polymers with the most complex and diverse three-dimensional structure are:

- A. Saturated fats
- B. Unsaturated fats
- C. Proteins
- D. Waxes
- E. Carbohydrates

57.

A nucleotide contains which of the following?

- A. Amino acid
- B. Sugar
- C. Sugar and nitrogenous base
- D. Nitrogenous base
- E. Nitrogenous base and amino acid

58.

How are the monomers in proteins joined?

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59.

How are the monomers in nucleic acids joined?

A. Peptide bonds between carbohydrates

B. Peptide bonds between amino acids

C. Phosphodiester bonds between amino acids

D. Peptide bonds

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Which question can evolution not explain?

- A. The diversity of species on Earth
- B. The common ancestry of all species on Earth
- C. How life started on Earth
- D. The same types of molecules

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E. The
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61.

What hypothesis were the scientists testing?

A. Can organic molecules be made on Earth?

B. Can extraterrestrial life be detected on meteorites?

C. Can life be created from a mixture of organic

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62.

How did the scientists determine if an organic molecule was extraterrestrial?

A. By looking for a decrease in ^{13}C and ^{15}N in the meteorite

B. By measuring the amount of amino acids in the meteorite

C. By measuring the amount

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63.

How are ^{13}C and ^{15}N different from the more abundant isotopes ^{12}C and ^{14}N ?

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64.

In Table 2.7 why were amino acids analyzed for ¹⁵N?

Amino Acids from Murchison Meteorite	¹⁵ N (parts per thousand) Relative to Standard	Bases from Murchison Meteorite	¹³ C (parts per thousand) Relative to Standard
Glycine	+37	Uracil	+44.5
Alanine	+57	Xanthine	+37.7
Aspartic acid	+61		
Glutamic acid	+58		
Typical terrestrial organic compounds	-5 to +10	Typical terrestrial organic compounds	-110 to 0

- A. Nitrogen is not present in nucleotides or carbohydrates
- B. Nitrogen is not present in nucleotides or lipids
- C. Nitrogen

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65.

Which of the following conclusions can be made from Table 2.7?

Amino Acids from Murchison Meteorite	¹⁵ N (parts per thousand) Relative to Standard	Bases from Murchison Meteorite	¹³ C (parts per thousand) Relative to Standard
Glycine	+37	Uracil	+44.5
Alanine	+57	Xanthine	+37.7
Aspartic acid	+61		
Glutamic acid	+58		
Typical terrestrial organic compounds	-5 to +10	Typical terrestrial organic compounds	-110 to 0

- A. Glycine is a more abundant amino acid in the meteorite than in terrestrial samples
- B. ¹⁵N is more abundant in amino

acids from the meteorite than from terrestrial samples

- C. Amino acids in the meteorite contain more nitrogen than amino acids from terrestrial samples
- D. ^{13}C is more

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66.

What is significant about detecting uracil in meteorites?

A. Uracil is found in DNA which is thought to be the original genetic material

B. Uracil is a precursor for many other biological molecules including

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E. Uracil
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67.

What essential function would lipids play in the origin of life?

- A. The formation of membranes
- B. Storage of information
- C. Catalysis of reactions
- D. Formation of a cytoskeleton
- E. Anaerobic fermentation

True / False Questions

68. A peptide bond is a covalent bond formed between the amino group of one amino acid and the R group of another amino acid.
- True False
69. Cohesion is a property of water in which water molecules tend to stick together.
- True False
70. A substance in which other substances dissolve is called a solute.
- True False
71. If ice were more dense than water, then during the winter most organisms living in ponds and lakes in colder climates would become entrapped in ice and freeze.
- True False
72. A fatty acid is unsaturated if there is at least one double bond between the carbon atoms in that fatty acid.
- True False
73. An essential amino acid is an amino acid that is found in all types of foods.
- True False
74. The primary function of hemoglobin is to regulate the level of sugar in the blood.
- True False
75. If a protein is denatured, its structure has been changed enough to make the protein nonfunctional.
- True False

76. Proteins store the genetic information of the cell and transmit it to the next generation.

True False

Chapter 002 - The Chemistry of Life **Key**

Multiple Choice Questions

1.

Which of the following is not a true statement?

- A. Nitric oxide consists of one atom of nitrogen and one atom of oxygen
- B. Nitric oxide is a gas
- C. Nitric oxide passes freely into and out of

- cel
ls
- D. Nitric oxide is a harmful substance found in smog and acid rain
- E. Nitric oxide has no true function in living organisms

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.01.01 Identify the primary elements in living organisms.
SECTION: 02.01
TOPIC: Chemistry

2.

The primary elements making up living organisms are:

A. Carbon,
hydrogen,
oxygen,
calcium,
iron,
and
iodine

B. Carbon,
oxygen,
iron,
chlorine,
sulfur,
and
phosphorus

C. Carbon,
hydrogen,
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BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.01.01 Identify the primary elements in living organisms.

SECTION: 02.01

TOPIC: Chemistry

3.

The atomic number of an atom or element is:

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BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

4.

An ion is:

- A. An atom that has gained electrons
- B. An atom that has a positive charge
- C. An atom that has lost electrons
- D. An atom that has a negative

gative
charge
E. All
are
correct

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

5.

The mass number of an atom is defined as:

A. The
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of
protons,
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of
an
atom

B. The
total
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total number of protons and neutrons of an atom

D. The total number of neutrons and electrons of an atom

E. The total number of protons

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BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

6.

Isotopes of the same element are different from one another in that:

A. They have a different number of protons

B. They have a different number of neutrons

C. They have a different number of electrons

7.

The first energy shell of an atom contains a maximum of:

A. One
electron

B. Two
electrons

C. Four
electrons

D. Eight
electrons

E. Sixteen
electrons

8.

If an atom has a valence shell that is full it:

A. Is
highly
reactive

B. Is
not
chemically
stable

C. Is
highly
likely
to
combine
with
other
atoms

D. Is
not
inert

E. Is
chemically
stable

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

9.

The second energy shell of an atom contains a maximum of:

A. Eight
electron
s

B. Two
electron
s

C. Four
electron
s

D. One
electron

E. Sixteen
electron
s

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.

SECTION: 02.01

TOPIC: Chemistry

10.

In a covalent bond:

A. At
om
s
sh
are
ele
ctr
on
s

B. At
om
s
of
op
po
sit
e
ch
arg
es
attr
act
ea
ch
oth
er

C. At
om
s
sh
are
a
pro
ton

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.

SECTION: 02.02

TOPIC: Chemistry

11.

An ionic bond is a bond in which:

A. At
om
s
sh
are
ele
ctr
on
s

B. At
om
s
sh
are
a
pro
ton

C. At
om
s
of
op
po
sit
e
ch
arg
es
attr
act
ea
ch
oth
er

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.

SECTION: 02.02

TOPIC: Chemistry

12.

In the example of ionic bond formation between sodium and chlorine, which of the following is not a true statement?

A. Na
is
the
ch
em
ica
l
sy
mb
ol
for
so
diu
m

B. Ch
lori
ne
do
nat
es
an
ele
ctr
on

C. So
diu
m
do
nat
es
an
ele
ctr
on

D. So
diu
m
be
co
me
s
po
siti
vel
y
ch

arg
ed
E. Th
e
bo
nd
tha
t is
for
me
d
is
a
str
on
g
bo
nd

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.

SECTION: 02.02

TOPIC: Chemistry

13.

In the example of ionic bond formation between sodium and chlorine:

A. Na
is
the
ch
em
ica
l
sy
mb
ol
for
chl
ori
ne

B. So
diu
m
ac
ce
pts
an
ele
ctr
on

C. Ch
lori
ne
ac
ce
pts
an
ele
ctr
on

D. Ch
lori
ne
be
co
me
s
po
siti
vel
y
ch
arg

ed
E. Both
th
so
diu
m
ac
ce
pts
an
ele
ctr
on
an
d
chl
ori
ne
be
co
me
s
po
siti
vel
y
ch
arg
ed
are
cor
rec
t

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.

SECTION: 02.02

TOPIC: Chemistry

14.

If a covalent bond is polar:

A. Electrons are not shared by atoms

B. Protons are shared by atoms

C. The bond is not important to living cells

D. One of the atoms has a partial negative

ive
ch
arg
e
E. Th
e
bo
nd
is
not
a
str
on
g
bo
nd

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.
SECTION: 02.02
TOPIC: Chemistry

15.

A hydrogen bond:

- A. Is a strong bond
- B. Does not occur within a molecule
- C. May occur between molecules
- D. Is not important to living cells
- E. Usually has a hydrogen

atom
with
a
partial
negative
charge

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.

SECTION: 02.02

TOPIC: Chemistry

16.

Evaporation is:

A. The
e
co
nv
ers
ion
of
a
liq
uid
int
o a
va
por

B. Th
e
co
nv
ers
ion
of
a
sol
id
int
o a
va
por

C. Th
e
co
nv
ers
ion
of
a
va
por
int
o a
liq
uid

D. Th
e
co
nv
ers
ion

of
a
va
por
int
o a
sol
id
E. All
are
cor
rec
t

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

17.

Ice floats on water because:

A. The
molecules
are
closer
together
in
ice
than
in
water

B. The
molecules
are
further
apart
in
ice
than
in
water

C. Ice
is
more
dense
than
water

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

18.

In a chemical equation:

A. The reactants are on the right of the yields arrow

B. Reactants and products are on both sides of the yields arrow

C. The products are on the left of the

yields
arrow

D. The
reactants
are
on
the
left
of
the
yields
arrow

E. The
number
of
atoms
of
each
element
may
be
different
on
the
two
sides
of
the
yields
arrow

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

19.

An acid:

A. Has a value above seven on the pH scale

B. Is a chemical that takes hydrogen ions from a solution

C. Has a value of seven on the pH

- scale
- D. Is
a
chemica
l
tha
t
ad
ds
hy
dro
ge
n
ion
s
to
a
sol
uti
on
- E. All
are
cor
rec
t

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

20.

A base:

A. Has a value of 7 on the pH scale

B. Is a chemical that adds hydrogen ions to a solution

C. Is a chemical that absorbs hydrogen ion

s
fro
m
a
sol
uti
on
D. Has a
val
ue
bel
ow
7
on
the
pH
sc
ale

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

21.

A substance having a pH of 2 would best be described as:

- A. Neutral
- B. A weak acid
- C. A weak base
- D. A strong base
- E.** A strong acid

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

22.

A substance having a pH of 6 would best be described as:

- A. A
we
ak
aci
d
- B. Ne
utr
al
- C. A
we
ak
ba
se
- D. A
str
on
g
aci
d
- E. A
str
on
g
ba
se

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

23.

A substance having a pH of 7 would best be described as:

- A. A
we
ak
aci
d
- B. A
we
ak
ba
se
- C.** Ne
utr
al
- D. A
str
on
g
aci
d
- E. A
str
on
g
ba
se

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

24.

A substance having a pH of 8 would best be described as:

A. Ne
utr
al

B. A
we
ak
ba
se

C. A
we
ak
aci
d

D. A
str
on
g
aci
d

E. A
str
on
g
ba
se

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

25.

A substance having a pH of 13 would best be described as:

- A. A
we
ak
aci
d
- B. A
we
ak
ba
se
- C.** Ne
utr
al
- D. A
str
on
g
aci
d
- E. A
str
on
g
ba
se

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

26.

Organic molecules are defined as chemical compounds that contain:

A. Carbon

B. Carbon and oxygen

C. Carbon and nitrogen

D. Carbon, hydrogen, and nitrogen

E. Carbon and hydrogen

27.

The four major groups of organic compounds are:

A. Fat
s,
wa
xe
s,
car
bo
hy
dra
tes

,
an
d
am
ino
aci
ds

B. Ca
rbo
hy
dra
tes

,
lipi
ds,
ste
roi
ds,
an
d
mo
no
sa
cc
har
ide
s

C. Lip
ids

,
fat
s,
wa
xe
s,
an
d

ste
roi
ds

D. Ca
rbo
hy
dra
tes

,
lipi
ds,
pro
tei
ns,
an
d
nu
cle
ic
aci
ds

E. Ca
rbo
hy
dra
tes

,
pro
tei
ns,
am
ino
aci
ds,
an
d
nu
cle
ic
aci
ds

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

28. A process by which cells build large molecules from monomers is:

- A. Hydrolysis
- B. Reproduction
- C. Condensation**
- D. All are correct

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

29. A process by which cells break polymers down into smaller units is:

- A. Hydrolysis**
- B. Condensation
- C. Reproduction
- D. All are correct

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

30.

Examples of monosaccharides are:

A. Glucose, maltose, and cellulose

B. Glucose, lactose, and maltose

C. Glucose, galactose, and fructose

D. Glucose, lactose, and cel

lul
os
e
E. No
ne
of
the
se
are
cor
rec
t

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

31.

Which is not a lipid?

- A. A
trig
lyc
eri
de
- B. A
ph
os
ph
oli
pid
- C. A
wa
x
- D. A
ste
rol
- E. A
sta
rch
mo
lec
ule

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

32.

The primary building block (monomer) of proteins is:

- A. A
glu
co
se
mo
lec
ule
- B. A
fatt
y
aci
d
- C. A
nu
cle
oti
de
- D.** An
am
ino
aci
d
- E. Fo
ur
int
erc
on
ne
cte
d
rin
gs

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

33.

An amino acid contains:

- A. Nitrogen
- B. Nitrogen and carbon**
- C. Carbon
- D. Phosphorus
- E. Carbon and phosphorus

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

34.

A peptide bond:

A. Is
an
ion
ic
bo
nd
in
pro
tei
ns

B. Is
a
co
val
ent
bo
nd
in
car
bo
hy
dra
tes

C. Is
a
co
val
ent
bo
nd
in
pro
tei
ns

D. Is
an
ion
ic
bo
nd
in
car
bo
hy
dra
tes

35.

The primary building block (monomer) of nucleic acids is:

- A.** A nucleotide
- B. A glucose molecule
- C. A fatty acid
- D. An amino acid
- E. Four interconnections

BLOOM'S LEVEL: 1. Remember

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

36.

The three major components in a nucleotide are:

A. Glucose, a nitrogen base, and a phosphate group

B. Glucose, a fatty acid, and glycerol

C. A nitrogen base, a six carbon sugar, and a

ph
os
ph
ate
gro
up

D. A
nitr
og
en
ba
se,
a
fiv
e
car
bo
n
su
gar

,
an
d a
ph
os
ph
ate
gro
up

E. A
car
bo
xyl
gro
up,
an
R
gro
up,
an
d
an
am
ino
gro
up

37.

The four nitrogen bases found in RNA are:

A. Ad
eni
ne,
thy
mi
ne,
gu
ani
ne,
an
d
ura
cil

B. Ad
eni
ne,
cyt
osi
ne,
gu
ani
ne,
an
d
ura
cil

C. Ad
eni
ne,
thy
mi
ne,
cyt
osi
ne,
an
d
ura
cil

D. Th
ym
ine
,
cyt
osi
ne,
gu
ani

- ne,
an
d
ura
cil
E. No
ne
of
the
se
are
cor
rec
t

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

38. Water is best described as which of the following?

- A. An
ion
B. A
no
n-
pol
ar
mo
lec
ule
C. An
ato
m
D. A
pol
ar
mo
lec
ule
E. An
ele
me
nt

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

39.

Individual water molecules bind to each other through:

A. Covalent bonds

B. Ionic bonds

C. Hydrogen bonds

D. Hydrophobic bonds

E. Non-polar bonds

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

40.

Within a single molecule of water, ____ bonds are formed between oxygen and hydrogen?

A. Ion
ic
bo
nd
s

B. Co
val
ent
bo
nd
s

C. Hy
dro
ge
n
bo
nd
s

D. Hy
dro
ph
obi
c
bo
nd
s

E. Nu
cle
ar
bo
nd
s

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.02.01 Compare and contrast the different types of bonds.
SECTION: 02.02
TOPIC: Chemistry

41.

The term pH refers to:

A. $[H^+]^2$

B. $[H^+]$

C. $-\log[H^+]$

D. $-[H^+]$

E. $\log[H^+]$

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

42.

You can painlessly wade into a pool, but doing a belly flop off of the high diving board hurts because of _____ in water.

A. Water's high density

B. Adhesion

C. Water's high boiling point

D. A neutral pH

E. Cohesion

BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

43.

Trees take up water hundreds of feet away by:

- A. Water's high density
- B. Cohesion
- C. Water's high boiling point
- D.** Adhesion
- E. A neutral pH

BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

44.

Sugars (CH₂O)_n dissolve well in water because sugars form _____ bonds with water.

A. Co
val
ent
bo
nd
s

B. Ion
ic
bo
nd
s

C. Hy
dro
ge
n
bo
nd
s

D. Hy
dro
ph
obi
c
bo
nd
s

E. No
n-
pol
ar
bo
nd
s

BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

45.

Blood pH is closely maintained at a pH of 7.4. A patient whose blood pH drops below 7.35 is suffering from metabolic acidosis and can go into a coma. What happens to the concentration of H^+ ions in a patient with a blood pH of 6.4?

A. H^+
concentration
is decreased
10-fold

B. H^+
concentration
is decreased
2-fold

C. H^+
concentration
is increased
2-fold

D. H^+
concentration

nc
ent
rati
on
is
de
cre
as
ed
4-
fol
d
E. H^+
co
nc
ent
rati
on
is
inc
rea
se
d
10-
fol
d

BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.04.01 Explain how acids and bases affect pH.
SECTION: 02.04
TOPIC: Chemistry

Scientists use carbon dating to determine the age of fossils. ^{14}C is a rare isotope of carbon that has a half life of 5730 years and decays into ^{14}N . By measuring the amount of ^{14}C remaining in a fossil, scientists can estimate when the organism died out to about 60,000 years. The atomic number of C is 6, and of N is 7.

46.

^{14}C and ^{14}N are both:

- A. At
om
s
- B. Mo
lec
ule
s
- C. Co
mp
ou
nd
s
- D. Pol
ym
ers
- E. Ion
s

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.02.02 Differentiate between atoms, molecules, and compounds.
SECTION: 02.02
TOPIC: Chemistry

47.

The most common isotope of carbon is ^{12}C . ^{14}C will have _____ than ^{12}C .

A. More protons

B. More neutrons

C. Fewer neutrons

D. Fewer protons

E. More electrons

BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

48.

When ^{14}C decays to ^{14}N the number of protons _____ and the number of neutrons _____.

A. Decreases by 1; increases by 1

B. Stays the same; increases by 1

C. Increases by 1; stays the same

D. Increases by 1; decreases by 1

1
E. De
cre
as
es
by
1;
sta
ys
the
sa
me

BLOOM'S LEVEL: 4. Analyze
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

49.

^{14}C and ^{14}N have the same:

- A. Atomic number
- B. Number of protons
- C. Atomic mass**
- D. Number of neutrons
- E. Number of electrons

BLOOM'S LEVEL: 4. Analyze
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

50.

If a fossil has only 25% of its ^{14}C remaining, how old is it?

- A. 5,730 years
- B. 2,865 years
- C. 1,432.5 years
- D. 22,920 years
- E. 11,460 years**

BLOOM'S LEVEL: 4. Analyze
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry

51.

Many digestive enzymes are hydrolases. What do these enzymes have in common?

A. They use water to form bonds between monomers

B. They use water to break bonds in monomers

C. They use water to break bonds

s
in
pol
ym
ers

D. Th
ey
us
e
wa
ter
to
for
m
bo
nd
s
bet
we
en
pol
ym
ers

E. Th
ey
rel
ea
se
wa
ter
in
for
mi
ng
bo
nd
s
bet
we
en
mo
no
me
rs

52.

_____ bonds are formed between monomers to form a polymer.

A. Ion
ic
bo
nd
s

B. Co
val
ent
bo
nd
s

C. Hy
dro
ge
n
bo
nd
s

D. Hy
dro
ph
obi
c
bo
nd
s

E. Nu
cle
ar
bo
nd
s

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.05.01 Explain how monomers are used to form polymers.
SECTION: 02.05
TOPIC: Chemistry

53.

In making beer, barley is partially fermented to produce malt. Barley is not sweet, but the malt is. What is the best explanation for this observation?

A. Fermentation allows the barley to make simple sugars from sunlight and carbon dioxide

B. Fermentation releases sugars stored

in
org
an
ell
es
in
the
bar
ley

C. Fer
me
nta
tio
n
ca
us
es
the
sta
rch
in
the
bar
ley
to
tas
te
sw
eet

D. Th
e
fer
me
nta
tio
n
bre
ak
s
sta
rch
in
the
bar
ley
do
wn
int
o
si
mp
le

su
gar
s
in
the
ma
lt
E. Fer
me
nta
tio
n
bre
ak
s
do
wn
the
si
mp
le
su
gar
s
in
the
bar
ley

BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.05.01 Explain how monomers are used to form polymers.
SECTION: 02.05
TOPIC: Chemistry

54.

Saturated fats have long straight tails of fatty acids, while unsaturated fats have kinks in their tails due to double bonds. These kinks prevent the fats from packing together as tightly. Animals that are ectothermic (cold blooded) need to keep their membranes fluid at cooler temperature and thus use _____ in their membranes.

A. Mostly unsaturated fats

B. Mostly saturated fats

C. Equal amounts of saturated and unsaturated fats

D. Carbohydrates

E. Proteins

55.

Saturated fats have long straight tails of fatty acids, while unsaturated fats from vegetables have kinks in their tails due to double bonds. These kinks prevent the fats from packing together as tightly. Hydrogenated vegetable oils have hydrogens added back to the double bonds and thus behave like ____.

- A. Un
sat
ura
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BLOOM'S LEVEL: 3. Apply

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

56. The polymers with the most complex and diverse three-dimensional structure are:

- A. Saturated fats
- B. Unsaturated fats
- C. Proteins**
- D. Waxes
- E. Carbohydrates

BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

57.

A nucleotide contains which of the following?

- A. Amino acid
- B. Sugar
- C. Sugar and nitrogenous base**
- D. Nitrogenous base
- E. Nitrogenous base and amino acid

BLOOM'S LEVEL: 2. Understand

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

SECTION: 02.05

TOPIC: Chemistry

58.

How are the monomers in proteins joined?

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BLOOM'S LEVEL: 2. Understand
LEARNING OUTCOME: 02.05.01 Explain how monomers are used to form polymers.
SECTION: 02.05
TOPIC: Chemistry
TOPIC: Investigating Life

59.

How are the monomers in nucleic acids joined?

- A. Peptide bonds between carbohydrates
- B. Peptide bonds between amino acids
- C. Phosphodiester bonds between amino acids
- D. Peptide bonds

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BLOOM'S LEVEL: 2. Understand

LEARNING OUTCOME: 02.05.01 Explain how monomers are used to form polymers.

SECTION: 02.05

TOPIC: Chemistry

TOPIC: Investigating Life

60.

Which question can evolution not explain?

- A. The diversity of species on Earth
- B. The common ancestry of all species on Earth
- C.** How life started on Earth
- D. The same types of molecules

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E. The
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of
new
species

BLOOM'S LEVEL: 2. Understand

LEARNING OUTCOME: 02.01.01 Identify the primary elements in living organisms.

LEARNING OUTCOME: 14.01.01 Describe how conditions on the early Earth could contribute to the production of biological molecules.

SECTION: 02.01

SECTION: 14.01

TOPIC: Chemistry

TOPIC: Investigating Life

TOPIC: Origins of Life

61.

What hypothesis were the scientists testing?

A. Can organic molecules be made on Earth?

B. Can extraterrestrial life be detected on meteorites?

C. Can life be created from a mixture of organic

anic
molecules?

D. What conditions existed on Earth when life first began?

E. Where are organic molecules found on meteorites or extraterrestrial?

BLOOM'S LEVEL: 2. Understand

LEARNING OUTCOME: 02.01.01 Identify the primary elements in living organisms.

LEARNING OUTCOME: 14.01.01 Describe how conditions on the early Earth could contribute to the production of biological molecules.

SECTION: 02.01

62.

How did the scientists determine if an organic molecule was extraterrestrial?

A. By looking for a decrease in ^{13}C and ^{15}N in the meteorite

B. By measuring the amount of amino acids in the meteorite

C. By measuring the amount

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BLOOM'S LEVEL: 2. Understand

LEARNING OUTCOME: 02.01.01 Identify the primary elements in living organisms.

LEARNING OUTCOME: 14.01.01 Describe how conditions on the early Earth could contribute to the production of biological molecules.

SECTION: 02.01

SECTION: 14.01

TOPIC: Chemistry

TOPIC: Investigating Life

TOPIC: Origins of Life

63.

How are ^{13}C and ^{15}N different from the more abundant isotopes ^{12}C and ^{14}N ?

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BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.01.02 Describe the structure of atoms.
SECTION: 02.01
TOPIC: Chemistry
TOPIC: Investigating Life

64.

In Table 2.7 why were amino acids analyzed for ¹⁵N?

Amino Acids from Murchison Meteorite	¹⁵ N (parts per thousand) Relative to Standard	Bases from Murchison Meteorite	¹³ C (parts per thousand) Relative to Standard
Glycine	+37	Uracil	+44.5
Alanine	+57	Xanthine	+37.7
Aspartic acid	+61		
Glutamic acid	+58		
Typical terrestrial organic compounds	-5 to +10	Typical terrestrial organic compounds	-110 to 0

A. Nitrogen is not present in nucleotides or carbohydrates

B. Nitrogen is not present in nucleotides or lipids

C. Nitrogen

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BLOOM'S LEVEL: 3. Apply
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry
TOPIC: Investigating Life

65.

Which of the following conclusions can be made from Table 2.7?

Amino Acids from Murchison Meteorite	¹⁵ N (parts per thousand) Relative to Standard	Bases from Murchison Meteorite	¹³ C (parts per thousand) Relative to Standard
Glycine	+37	Uracil	+44.5
Alanine	+57	Xanthine	+37.7
Aspartic acid	+61		
Glutamic acid	+58		
Typical terrestrial organic compounds	-5 to +10	Typical terrestrial organic compounds	-110 to 0

A. Glycine is a more abundant amino acid in the meteorite than in terrestrial samples

B. ¹⁵N is more abundant in amino

acids from the meteorite than from terrestrial samples

- C. Amino acids in the meteorite contain more nitrogen than amino acids from terrestrial samples
- D. ^{13}C is more

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BLOOM'S LEVEL: 4. Analyze

LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.

LEARNING OUTCOME: 14.01.01 Describe how conditions on the early Earth could contribute to the production of biological molecules.

SECTION: 02.05

SECTION: 14.01

TOPIC: Chemistry

TOPIC: Investigating Life

TOPIC: Origins of Life

66.

What is significant about detecting uracil in meteorites?

A. Uracil is found in DNA which is thought to be the original genetic material

B. Uracil is a precursor for many other biological molecules including

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BLOOM'S LEVEL: 4. Analyze
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
LEARNING OUTCOME: 14.01.02 Explain why RNA may have been the first form of genetic material.
SECTION: 02.05
SECTION: 14.01
TOPIC: Chemistry
TOPIC: Investigating Life
TOPIC: Origins of Life

67.

What essential function would lipids play in the origin of life?

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BLOOM'S LEVEL: 4. Analyze
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
LEARNING OUTCOME: 14.01.01 Describe how conditions on the early Earth could contribute to the production of biological molecules.
SECTION: 02.05
SECTION: 14.01
TOPIC: Chemistry
TOPIC: Investigating Life
TOPIC: Origins of Life

True / False Questions

68. A peptide bond is a covalent bond formed between the amino group of one amino acid and the R group of another amino acid.

FALSE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

69. Cohesion is a property of water in which water molecules tend to stick together.

TRUE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

70. A substance in which other substances dissolve is called a solute.

FALSE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

71. If ice were more dense than water, then during the winter most organisms living in ponds and lakes in colder climates would become entrapped in ice and freeze.

TRUE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.03.01 Explain how the structure of water affects its chemical properties.
SECTION: 02.03
TOPIC: Chemistry

72. A fatty acid is unsaturated if there is at least one double bond between the carbon atoms in that fatty acid.

TRUE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

73. An essential amino acid is an amino acid that is found in all types of foods.

FALSE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

74. The primary function of hemoglobin is to regulate the level of sugar in the blood.

FALSE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

75. If a protein is denatured, its structure has been changed enough to make the protein nonfunctional.

TRUE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

76. Proteins store the genetic information of the cell and transmit it to the next generation.

FALSE

BLOOM'S LEVEL: 1. Remember
LEARNING OUTCOME: 02.05.02 Compare and contrast the structure and function of the four classes of biological molecules.
SECTION: 02.05
TOPIC: Chemistry

Chapter 002 - The Chemistry of Life **Summary**

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