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Chapter 01 - Biochemistry and the Organization of Cells

1. How do the molecules that play a role in living cells compare to those encountered in organic chemistry?
   a. They are the same, just operating in a different context.
   b. Biological molecules are organic molecules, but the similarity ends there.
   c. Biological molecules aren't similar to organic molecules at all.
   d. Biology isn't based on molecules at all, but a "vital force".

ANSWER:	a
POINTS:	1
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
LEARNING OBJECTIVES:	CAFA.BIOC.15.1 - New in 8e
TOPICS:	Basic Themes
DATE CREATED:	12/23/2013 2:14 PM
DATE MODIFIED:	12/23/2013 2:14 PM

2. Which of the following shows the correct order from most simple to most complex:
   a. atom, molecule, organelle, macromolecule
   b. molecule, atom, macromolecule, organelle
   c. tissue, cell, organ
   d. atom, macromolecule, tissue, organ

ANSWER:	d
POINTS:	1
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
LEARNING OBJECTIVES:	CAFA.BIOC.15.2 - Added in 8e
TOPICS:	Basic Themes

DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 11/16/2016 1:13 AM

3. Which of the following best defines **organic chemistry**?

a. The study of compounds contained in organisms.
b. The study of compounds containing organs.
c. The study of compounds containing carbon and hydrogen and their derivatives.
d. The study of compounds containing elements other than carbon.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in 6e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

4. Which of the following is NOT one of the primary simple molecules that scientists believe must have ultimately led to creating living things?

a. ammonia
b. carbon dioxide
c. hydrogen
d. simple carbohydrates

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.3 - New in 6e
TOPICS: Basic Themes
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DATE MODIFIED: 11/16/2016 12:07 AM

5. Which of the following was part of the **vital force theory**?

a. The compounds found in living things are just like those found in the non-living world.
b. The compounds found in living things are interesting, but can easily be produced in the laboratory.
c. The compounds found in living things can not be produced in the laboratory.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in 6e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

6. The synthesis of urea from ammonium cyanate.

a. was a critical component of the Miller-Urey experiment.
b. requires a protein as a catalyst.
c. helped dispel the vital force theory.
d. supported the vital force theory.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

7. Which of the following is NOT a Functional Group

a. Amino group
b. Protein
c. Alcohol group
d. Carbonyl group

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

8. Which of the following functional groups is specific to an alcohol?

a. -NH
b. -OH
c. -C=O
d. C=C
e. O-P

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.3 - New in 8e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 11/23/2016 12:42 AM

9. Which of the following functional groups are not commonly seen in biomolecules?

a. Alkyl halides
b. Amides

c. Carboxylic acids
d. Ethers
e. Phosphate esters

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

10. Which of the following statements regarding biomolecules is **false**?
a. They contain predominantly ionic bonds.
b. They contain predominantly nonmetallic elements.
c. Carbon is the key element.
d. Specific stereoisomers are essential in most cases.

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

11. All of the following bonds are important in biomolecules, **except**:
a. C−Cl
b. C−H
c. C−N
d. O−H
e. O−P

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

12. Which of the following statements regarding biopolymers is false?
a. Different sequences of the monomers can lead to different functions.
b. Only soluble polymers can be created from soluble monomers.
c. A wide, almost uncountable variety of polymers can be created from just a few monomers.
d. Different linkages between the monomers can lead to different functions.

e. Biopolymers can fold up into complex shapes.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

13. Which statement is **not** correct about peptide nucleic acids, PNA?
a. They are combinations of peptides and nucleic acids.
b. Scientists create them to study the origins of life
c. They were proven to be the first hereditary molecule.
d. They may combine the catalytic properties of proteins with the information transfer ability of nucleic acid
e. All of these statements apply to PNA.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

14. According to the big bang theory of the creation of the universe,
a. the universe has been getting cooler since its beginning
b. the initial explosion caused the creation of all of the elements of the periodic table
c. carbon is the most abundant element in the universe
d. the earth could be no older than 1 billion years

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

15. In its earliest stages, which atoms were present in the universe?
a. carbon, hydrogen, and oxygen
b. hydrogen, helium, and lithium
c. nitrogen, sulfur, and phosphorous
d. uranium, polonium, and radium
e. helium, neon, and argon

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in the
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

16. How are the majority of elements thought to have been formed?
    a. By thermonuclear reactions that normally take place in stars.
    b. In explosions of stars.
    c. By the action of cosmic rays outside the stars since the formation of the galaxy.
    d. All of the choices are true
    e. None of the choices; all the elements were present from the initial Big Bang.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in the
TOPICS: Origin of Life
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DATE MODIFIED: 12/23/2013 2:14 PM

17. What is the chemical formula for ozone?
    a. O_2
    b. O_3
    c. NH_3
    d. H_2S
    e. CH_4

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in the
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

18. It is generally believed that the following gas was missing in the primordial atmosphere:
    a. H_2
    b. CO_2
    c. CH_4

d. NH_3

e. O_2

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

19. A catalyst

a. increases the rate of a chemical reaction

b. increases the amount of product obtained in a chemical reaction

c. decreases the amount of product obtained in a chemical reaction

d. none of the choices

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

20. The genetic coding material is

a. protein

b. DNA

c. polysaccharide

d. lipid

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

21. The presence of two anhydride linkages is an important feature of

a. ATP

b. proteins

c. glucose

d. carbon monoxide

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice

HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.3 - New in 8e
TOPICS: Origins of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 11/16/2016 1:16 AM

22. Which of the following best describes the results of the Miller-Urey experiment?
    a. It proved that DNA is the genetic material.
    b. It produced proteins under conditions simulating the early Earth.
    c. It created living cells from non-living materials.
    d. It produced some simple organic compounds from a mixture of gases presumed to have existed in the early atmosphere.
    e. All of these results of the Miller-Urey experiment.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in 8e
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

23. The idea that a coding system and a catalysis system came about separately and then combined to form life as we know it is known as
    a. the origin of life
    b. the big bang theory
    c. the double origen theory
    d. the theory of evolution

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.3 - New in 8e
TOPICS: Origens of Life
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DATE MODIFIED: 11/16/2016 1:16 AM

24. The genetic code
    a. determines the order of sugars in a polysaccharide
    b. has no effect on the sequence of amino acids in proteins
    c. is the means by which the "blueprint" for living organisms is passed from one generation to the next
    d. cannot be understood by currently available experimental methods

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice

HAS VARIABLES: False
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

25. Biological catalysts are
    a. proteins exclusively
    b. RNA exclusively
    c. DNA exclusively
    d. some proteins and some RNA

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

26. The main difference between prokaryotic and eukaryotic cells is the existence of _____ in eukaryotes.
    a. the nucleus
    b. ribosomes
    c. DNA
    d. RNA
    e. cell walls

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Prokaryotes & Eukaryotes
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27. All of the following features are common to all living organisms, **except**:
    a. Biomolecules
    b. Metabolic pathways
    c. Cellular structures
    d. DNA sequences
    e. RNA molecules

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Prokaryotes & Eukaryotes
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28. All eukaryotic organisms
    a. are multicellular
    b. have a nucleus
    c. have chloroplasts
    d. have a cell wall

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Prokaryotes & Eukaryotes
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DATE MODIFIED: 12/23/2013 2:14 PM

29. Cell membranes
    a. are found in plants, but not in animals
    b. consist mainly of sugars
    c. do not allow transport into or out of the cell
    d. separate the cell from the outside world

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Prokaryotes & Eukaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

30. Which of the following is **not** a subcellular organelle?
    a. nucleus
    b. mitochondrion
    c. endoplasmic reticulum
    d. cytoskeleton

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Prokaryotes & Eukaryotes
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DATE MODIFIED: 12/23/2013 2:14 PM

31. Energy-yielding oxidation reactions take place in eukaryotic
    a. nuclei.

b. ribosomes.
c. mitochondria.
d. endoplasmic reticula.
e. cell walls.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in e
TOPICS: Prokaryotes & Eukaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

32. Prokaryotic cells
a. do not have a well defined nucleus
b. are smaller than eukaryotic cells
c. do not have internal membranes
d. all of the above

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Prokaryotic Structure
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33. Prokaryotes
a. contain ribosomes
b. do not have a cell membrane
c. contain mitochondria
d. none of the above

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Prokaryotic Structure
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34. Ribosomes
a. are the site of photosynthesis
b. are the site of protein synthesis
c. are never bound to membranes
d. cannot be seen in the electron microscope

ANSWER: b

POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Prokaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

35. 11 Ribosomes are made up of
    a. RNA and proteins
    b. DNA and proteins
    c. RNA and DNA
    d. proteins and carbohydrates

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Prokaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

36. Which of the following cellular components is commonly found in bacteria?
    a. Nucleus
    b. Ribosomes
    c. Chloroplasts
    d. Mitochondria
    e. More than one of these is characteristic of bacteria.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Prokaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

37. Which organelle does not contain DNA?
    a. Nucleus
    b. Mitochondrion
    c. Rough Endoplasmic Reticulum
    d. Chloroplast
    e. All of these organelles contain DNA

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False

TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

38. Which cell component is composed of RNA and protein?
    a. Nucleus
    b. Mitochondrion
    c. Endoplasmic Reticulum
    d. Chloroplast
    e. Ribosome

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

39. Which cell component has cristae?
    a. Nucleus
    b. Mitochondrion
    c. Endoplasmic Reticulum
    d. Chloroplast
    e. Ribosome

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

40. Which organelle is involved in the synthesis of ATP?
    a. Nucleus
    b. Mitochondrion
    c. Chloroplast
    d. ATP is synthesized in both mitochondria and chloroplasts.
    e. ATP is synthesized in all three organelles.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure

DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

41. Eukaryotic DNA
    a. is found in the nucleus
    b. is found in the mitochondrion
    c. is found in the chloroplast
    d. all of the above

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

42. Which of the following statements about eukaryotic nuclei is FALSE?
    a. They are separated from the rest of the cell by a single membrane.
    b. They contain RNA.
    c. They contain chromatin.
    d. They play a role in genetics.

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

43. Which cell component does **not** have a double membrane?
    a. Nucleus
    b. Lysosome
    c. Rough Endoplasmic Reticulum
    d. Chloroplast
    e. Mitochondrion

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

44. Which of the following statements about eukaryotic mitochondria is TRUE?
    a. They play a role in genetics.
    b. They are the site of photosynthesis in green plants.
    c. They have an inner and an outer membrane.
    d. They only occur in animals, not plants.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

45. Which is **not** a property of ribosomes?
    a. They are an assembly of polypeptides and RNA.
    b. They are found in both prokaryotic and eukaryotic cells.
    c. They function as agents in the biosynthesis of proteins.
    d. They are found in the cytoplasm and smooth endoplasmic reticulum.
    e. All of these statements are true about ribosomes.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

46. Which cell component is able to capture the energy of light?
    a. Nucleus
    b. Lysosome
    c. Rough Endoplasmic Reticulum
    d. Chloroplast
    e. Mitochondrion

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

47. Which cell component contains many hydrolytic enzymes?
    a. Nucleus

b. Lysosome
c. Rough Endoplasmic Reticulum
d. Chloroplast
e. Mitochondrion

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

48. The following cellular component is characteristic of eukaryotic cells:
a. Nucleus
b. Ribosomes
c. Chloroplasts
d. Mitochondria
e. More than one of these is characteristic of eukaryotic cells.

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

49. The following cellular component is the defining component of eukaryotic cells:
a. Nucleus
b. Ribosomes
c. Chloroplasts
d. Mitochondria
e. Cell membranes

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

50. The mitochondrial matrix
a. is the location of enzymes needed for oxidation reactions
b. contains an array of microtubules
c. is part of the endoplasmic reticulum

d. lies between the inner and outer mitochondrial membrane

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

51. The following cellular component is the defining component of most plant cells:
    a. Nucleus
    b. Ribosomes
    c. Chloroplasts
    d. Mitochondria
    e. Cell walls

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

52. The endoplasmic reticulum
    a. is part of a continuous membrane system throughout the cell
    b. occurs in two forms, rough and smooth
    c. can have ribosomes bound to it
    d. all of the above

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

53. Chloroplasts
    a. contain no DNA
    b. are bounded by a single membrane
    c. are relatively small organelles
    d. are the site of photosynthesis in green plants

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False

TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

54. The Golgi apparatus
    a. occurs in prokaryotes
    b. is involved in secretion of proteins from the cell
    c. is part of the chloroplast
    d. is the site of protein synthesis
ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

55. Lysosomes, peroxisomes, and glyoxysomes are
    a. sites of cell damage
    b. important in mitosis
    c. specialized organelles
    d. a part of the rough endoplasmic reticulum
ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

56. Cell walls
    a. occur in plants and bacteria
    b. occur in plants and animals
    c. occur only in plants
    d. occur only in bacteria
ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

57. Animal cells do not contain
    a. a nucleus

b. mitochondria
c. chloroplasts
d. lysosomes

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

58. A kind of cellular structure present in plant cells but not in human cells is
a. the endoplasmic reticulum
b. a cell wall
c. ribosomes
d. a plasma membrane

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

59. Which of the following organelles does not have a double membrane?
a. mitochondrion
b. nucleus
c. endoplasmic reticulum
d. chloroplast

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5 e
TOPICS: Eukaryotic Structure
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

60. Which of these kingdoms includes only prokaryotic organisms?
a. Animals
b. Fungi
c. Monera
d. Plants
e. Protista

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: How we classify eukaryotes and prokaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

61. Which of these eukaryotic kingdoms consists primarily of unicellular organisms?
    a. Animals
    b. Fungi
    c. Plants
    d. Protista
    e. Both fungi and protista.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: How we classify eukaryotes and prokaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

62. In the Five Kingdom classification system, human beings would be considered
    a. animals.
    b. protists.
    c. monera.
    d. fungi.
    e. none of the above.

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: How we classify eukaryotes and prokaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

63. In the Five Kingdom classification system, *Escherichia coli* would be considered
    a. animals.
    b. protists.
    c. monera.
    d. none of the above.

ANSWER: c

POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.5 - Modified from 5e
TOPICS: How we classify eukaryotes and prokaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

64. The endosymbiotic theory describes the origin of
a. the nucleus & ribosomes.
b. the Golgi and endoplasmic reticulum.
c. lysosomes and the cytoskeleton.
d. mitochondria & chloroplasts.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: How we classify eukaryotes and prokaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

65. Which of following provides evidence for the endosymbiotic theory describing the origin of mitochondria & chloroplasts?
a. These organelles have their own nuclei.
b. These organelles have their own endoplasmic reticulum.
c. These organelles have their own lysosomes.
d. These organelles have their own DNA.

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.1 - New in 6e
TOPICS: How we classify eukaryotes and prokaryotes
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

66. According to thermodynamics, favored processes are
a. ones that require energy.
b. ones that release energy.
c. oxidations.
d. reductions.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False

TOPICS: Biochemical Energetics
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

67. Which of the following is/are true?
    a. The hydrolysis of ATP releases energy.
    b. Favorable reactions are always fast.
    c. The hydrolysis of ATP requires the input of oxygen
    d. The hydrolysis of ATP yields more energy per molecule than the reaction of any other compound

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Biochemical Energetics
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

68. The aerobic combustion of glucose to yield carbon dioxide and water
    a. is thermodynamically favorable
    b. requires oxygen
    c. has a negative Gibb's free energy
    d. all of these are true

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.4 - New in 7e
TOPICS: Energy and Change
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

69. A spontaneous reaction is
    a. exergonic.
    b. endergonic.
    c. at equilibrium.
    d. none of the above.

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: CAFA.BIOC.15.6 - Modified in 7e
TOPICS: Spontaneity
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

70. The heat of a reaction at constant pressure is

a. its change in entropy.

b. its change in enthalpy.

c. its change in free energy.

d. its spontaneity.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Life and Thermodynamics
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

Match the macromolecules with the monomeric unit in each.

a. nucleic acids

b. proteins

c. carbohydrate

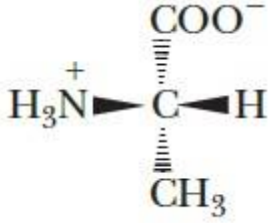
QUESTION TYPE: Matching
HAS VARIABLES: False
TOPICS: Origin of Life
DATE CREATED: 12/23/2013 2:14 PM
DATE MODIFIED: 12/23/2013 2:14 PM

71. amino acid
ANSWER: b
POINTS: 1

72. monosaccharide
ANSWER: c
POINTS: 1

73. nucleotide
ANSWER: a
POINTS: 1

74. Identify the class of basic biomolecules represented by the following structure.



a. Carbohydrates

b. Amino acids

c. Nucleotides

d. Lipids

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 11/25/2016 4:56 AM
DATE MODIFIED: 11/25/2016 5:00 AM

75. Explain the significance of functional groups in biochemistry.

ANSWER: Biomolecules have characteristic functional groups that determine their reactions. Many of these functional groups contain oxygen and nitrogen, which are among the most electronegative elements. As a result, many of these functional groups are polar, and their polar nature plays a crucial role in their reactivity.
POINTS: 1
QUESTION TYPE: Essay
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 11/25/2016 5:01 AM
DATE MODIFIED: 11/25/2016 5:31 AM

76. Which of the following biomolecules forms the molecular currency of the cell, adenosine triphosphate (ATP)?

a. Nucleotides
b. Esters
c. Amino acids
d. Lipids

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 11/25/2016 5:23 AM
DATE MODIFIED: 11/25/2016 5:30 AM

77. Carbohydrates can be represented by a general formula of _____.

a. $R\text{-}CH_n(NH_2)\text{-}COOH$
b. $CH_3(CH_2)_nCO_2H$
c. C_nH_{2n-2}
d. $(CH_2O)_n$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 11/25/2016 5:32 AM

DATE MODIFIED: 11/25/2016 5:34 AM

78. Lipids are characterized by poor solubility in water most of their structure is composed of _____.

a. a central carbon atom bonded to a carboxyl group, a hydrogen group, and a variable group, called the R group

b. a five-carbon sugar, a nitrogen-containing ring, and one or more phosphate groups

c. long chains of hydrocarbons

d. straight sugar chains that forms cyclic structures in a solution

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Chemical Foundations of Biochemistry
DATE CREATED: 11/25/2016 5:36 AM
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