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| 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 6e | | *TOPICS:* | Basic Themes | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 | |

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| 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 | |

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| 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 8e | | *TOPICS:* | Basic Themes | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 11/16/2016 12:07 AM | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 6e | | *TOPICS:* | Origin of Life | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 6e | | *TOPICS:* | Origin of Life | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 17. What is the chemical formula for ozone?   |  |  |  | | --- | --- | --- | |  | a. | O2 | |  | b. | O3 | |  | c. | NH3 | |  | d. | H2S | |  | e. | CH4 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *LEARNING OBJECTIVES:* | CAFA.BIOC.15.1 - New in 6e | | *TOPICS:* | Origin of Life | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 18. It is generally believed that the following gas was missing in the primordial atmosphere:   |  |  |  | | --- | --- | --- | |  | a. | H2 | |  | b. | CO2 | |  | c. | CH4 | |  | d. | NH3 | |  | e. | O2 |  |  |  | | --- | --- | | *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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 6e | | *TOPICS:* | Origin of Life | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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

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| 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 | |

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| 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 | |

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| 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 5e | | *TOPICS:* | Prokaryotes & Eukaryotes | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 11/29/2016 6:44 AM | |

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

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

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| 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 | |

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

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| 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 6e | | *TOPICS:* | Prokaryotes & Eukaryotes | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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

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

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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 | |

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| 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 | |

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| 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 5e | | *TOPICS:* | Prokaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 | |

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| 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 6e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 6e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 | |

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| 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 | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 5e | | *TOPICS:* | Eukaryotic Structure | | *DATE CREATED:* | 12/23/2013 2:14 PM | | *DATE MODIFIED:* | 12/23/2013 2:14 PM | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| *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 | |

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| 71. amino acid   |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | |

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| 72. monosaccharide   |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | |

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| 73. nucleotide   |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | |

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| 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 | |

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| 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 | |

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| 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 | |

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| 77. Carbohydrates can be represented by a general formula of \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​R-CHn(NH2)-COOH | |  | b. | CH3(CH2)nCO2H​ | |  | c. | ​CnH2n-2 | |  | d. | ​(CH2O)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 | |

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| 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 | | *DATE MODIFIED:* | 12/2/2016 8:51 AM | |