

Name: _____ Date: _____

1. Which of the following was given the title “Father of Botany”?
 - A) Pliny
 - B) Dioscorides
 - C) Aristotle
 - D) Theophrastus
 - E) Shen Nung

2. The study of plants and their impact on humans is important because plants
 - A) provide food, shelter, and clothing.
 - B) occupy important ecological niches that are interrelated to many other organisms.
 - C) contribute to the natural beauty of the world and play a role in many recreational pursuits.
 - D) influence world climate.
 - E) all of the above are correct.

3. Which sequence generally describes the steps of the scientific method?
 - A) hypothesis, observation, testing, retesting
 - B) testing, observation, hypothesis, retesting
 - C) observation, hypothesis, testing, retesting
 - D) observation, testing, hypothesis, retesting
 - E) observation, writing, hypothesis, publishing

4. A *theory* is
 - A) an educated guess.
 - B) an accumulation of data.
 - C) a modified hypothesis.
 - D) a repeatable observation.
 - E) a group of generalizations or principles that help us understand something.

5. The noted Swedish botanist Linnaeus published his book, *Species Plantarum*, in the early twentieth century.

6. Plant morphology is a discipline that deals with the naming and classification of plants.

7. The microscope was invented during the eighteenth century.

8. Van Helmont concluded after his classical experiment with the willow tree that its increase in weight had been due to the water it had absorbed.
9. Science may be defined as “a search for knowledge of the natural world.”
10. Sugar and starch molecules contain which of the following elements?
A) carbon
B) hydrogen
C) nitrogen
D) phosphorus
E) both [a and b]
11. An acid is a compound that
A) releases hydroxyl ions when dissolved in water.
B) forms water when mixed with a salt.
C) releases positively charged hydrogen ions when dissolved in water.
D) converts starch to glucose.
E) converts proteins to carbohydrates.
12. Which of the following is NOT a major component of protoplasm?
A) carbon
B) hydrogen
C) oxygen
D) nitrogen
E) sulfur
13. Which of the following is NOT an attribute of all living organisms?
A) metabolism
B) photosynthesis
C) reproduction
D) response to stimuli
E) adaptation to the environment
14. At present the number of known elements is
A) less than 90.
B) 92.
C) 98.
D) 104.
E) more than 105.

15. Which of the following is NOT a form of metabolism?
- A) respiration
 - B) photosynthesis
 - C) diffusion
 - D) digestion
 - E) assimilation
16. Which of the following pH values is considered neutral (i. e. , neither acidic nor basic)?
- A) 6.8
 - B) 7.3
 - C) 7.5
 - D) 8.0
 - E) none of the above
17. Compounds that consist of carbon, hydrogen, and oxygen in a ratio of CH_2O are
- A) lipids.
 - B) proteins.
 - C) nucleic acids.
 - D) enzymes.
 - E) carbohydrates.
18. About two minutes is the estimated average life of
- A) DNA.
 - B) mRNA.
 - C) rRNA.
 - D) tRNA.
 - E) qRNA.
19. Each nucleotide of a DNA molecule consists of a nitrogenous base plus
- A) a 5-carbon sugar and a phosphate group.
 - B) an RNA molecule.
 - C) a sulphur salt.
 - D) a form of starch and a potassium ion.
 - E) a lipid and a carbohydrate.

20. A nucleotide base that has a molecular structure resembling two linked rings is
- A) cytosine.
 - B) thymine.
 - C) uracil.
 - D) pyrimidine.
 - E) purine.
21. Unfilled positions within an electron orbital tend to make the atom
- A) unreactive.
 - B) neutral.
 - C) less reactive.
 - D) more reactive.
 - E) stable.
22. Which type of chemical bond involves the transfer of electrons?
- A) ionic
 - B) covalent
 - C) hydrogen
 - D) both [a and b] are correct
 - E) both [a and c] are correct
23. Which element is capable of forming triple covalent bonds?
- A) carbon
 - B) hydrogen
 - C) oxygen
 - D) nitrogen
 - E) potassium
24. Carbon has an atomic number of 6. How many electrons does carbon have in its first and second electron orbitals, respectively?
- A) 2, 4
 - B) 4, 2
 - C) 1, 5
 - D) 3, 3
 - E) 0, 6

25. The linear sequence of amino acids in a polypeptide chain is called the
- A) primary structure.
 - B) secondary structure.
 - C) tertiary structure.
 - D) quaternary structure.
 - E) beta structure.
26. A disulfide linkage or bond would be instrumental in maintaining the _____ structure of a protein
- A) primary
 - B) secondary
 - C) tertiary
 - D) quaternary
 - E) alpha
27. A fatty acid which has all possible hydrogen atoms bonding to each carbon atom would be
- A) saturated.
 - B) unsaturated.
 - C) polycarbonated.
 - D) polyoxygenated.
 - E) polyunsaturated.
28. Which nucleotide is found in RNA but not DNA?
- A) adenine
 - B) uracil
 - C) cytosine
 - D) thymine
 - E) guanine
29. An isotope has neutrons differing in number from that of a typical element.
30. A base is a compound that releases hydrogen ions when dissolved in water.
31. Which of the following carries a single positive charge?
- A) proton
 - B) neutron
 - C) lepton
 - D) electron
 - E) quark

