Sterns Introductory Plant Biology 15th edition Bidlack Test Bank

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CORRECT ANSWERS ARE LOCATED IN THE 2ND HALF OF THIS DOC.

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) Callose is produced on the bark of a plant that has been damaged.
   - ◎ true
   - ◎ false

2) Isotopes of an element have the same chemical characteristics but differ in atomic mass.
   - ◎ true
   - ◎ false

3) Two different atoms, each with 7 electrons in their outmost energy shell, may share two pairs of electrons; that is, a double bond is formed between the two atoms.
   - ◎ true
   - ◎ false

4) A base is a compound that releases hydrogen ions when dissolved in water.
   - ◎ true
   - ◎ false

5) Hydrolysis of starch involves the addition of water molecules to the starch molecule.
   - ◎ true
   - ◎ false

6) If a lipid has its fatty acids attached to a glycerol molecule, it is called a wax.
   - ◎ true
   - ◎ false

7) About 50% of the cytoplasm including structures within are composed of carbon, hydrogen, oxygen, and nitrogen. The other 50% includes phosphorous, sulfur, potassium, and calcium.
   - ◎ true
   - ◎ false

8) An ion is neither positively nor negatively charged.
   - ◎ true
   - ◎ false

9) Nitrogenous bases refer to specific types of amino acids
   - ◎ true
   - ◎ false

10) Protein molecules differ from those of carbohydrates and lipids in having nitrogen present.
   - ◎ true
   - ◎ false

11) Peptide bonds link the building blocks of carbohydrates together.
   - ◎ true
   - ◎ false

12) Nucleotides and amino acids are both "building blocks" of larger molecules.
   - ◎ true
   - ◎ false

13) The function of a protein will be either less effective or lost if the three-dimensional shape of the protein is altered.
   - ◎ true
   - ◎ false

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14) Assimilation is the conversion of raw materials into protoplasm and other cell substances.
- ◎ true
- ◎ false

15) Potential energy can be converted to kinetic energy.
- ◎ true
- ◎ false

16) The combining capacity of an atom or ion is referred to as its *valence*.
- ◎ true
- ◎ false

17) If hydrogen atoms are attached to every available attachment point of fatty acid carbon atoms in a fat, the fat is said to be unsaturated.
- ◎ true
- ◎ false

18) All hormones and enzymes are lipids.
- ◎ true
- ◎ false

CHECK ALL THE APPLY. Choose all options that best completes the statement or answers the question.

19) How can a plant combat drought?
- A) Grow deeper roots
- B) Curl leaves in direct sunlight
- C) Produce more nectar
- D) Open pores on the leaves

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

20) What is NOT a form of metabolism?
- A) Respiration
- B) Photosynthesis
- C) Diffusion
- D) Digestion
- E) Assimilation

21) Which of the following metabolic activities of plants produces sugars?
- A) Photosynthesis
- B) Assimilation
- C) Digestion
- D) Respiration
- E) None of the choices are correct.

22) Determination of whether something is a living organism, or a nonliving object is based on _____.
- A) a single characteristic such as change in position
- B) presence of carbon and hydrogen atoms
- C) several characteristics such as DNA and other organic materials inside a cell
- D) movement
- E) presence of carbon and oxygen atoms

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23) As living individuals grow and reproduce their response to environmental stimuli may include _____.
   A) movement
   B) increase in size
   C) change in position
   D) All of the choices are correct.
   E) None of the choices are correct.

24) Which of the following is NOT an attribute of ALL living organisms?
   A) Response to stimuli
   B) Metabolism
   C) Nervous system
   D) Reproduction
   E) Growth

25) If a plant is wounded, some cells near the wound site begin dividing and seal off the wound. Once the wound is sealed, the cells stop dividing. The criterion /criteria of life illustrated here is/are
   A) response to an external stimulus.
   B) growth.
   C) reproduction.
   D) adaptation to the environment.
   E) Both response to the environment and growth are involved.

26) Reproduction in living organisms results in _____.
   A) new individuals of the same species
   B) new individuals that are always genetically identical to the parents
   C) new individuals that are never genetically identical to the parents
   D) overpopulation of the community by that species
   E) loss of genetic variability in the population

27) Response to a stimulus _____.
   A) requires movement
   B) may include a cellular or chemical change in the individual
   C) may occur without any chemical or physical change by the individual
   D) is not characteristic of rooted plants.
   E) always changes the genetic information

28) The basic "stuff of the universe" or matter has which of the following characteristics?
   A) Occupies space
   B) Has mass
   C) Composed of atomic elements
   D) Occupies space and has mass
   E) All of the choices are correct.

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29) At present the number of elements naturally occurring on earth is _____.
A) less than 90
B) 92
C) 98
D) 104
E) more than 105

30) The number of protons and electrons in a neutral atom is
A) quite variable.
B) the same.
C) unknown.
D) always unequal.
E) unrelated.

31) A sodium atom has 11 protons and 12 neutrons. What is the atomic number of sodium?
A) 1
B) 11
C) 12
D) 23
E) 34

32) The volume of space in which a given electron occurs 90% of the time is called
A) an orbital.
B) a nucleus.
C) an atom.
D) a molecule.
E) a bond.

33) The element with the lowest atomic number and/or mass is
A) oxygen.
B) hydrogen.
C) boron.
D) nitrogen.
E) carbon.

34) Electrons are essentially
A) positive electric charges.
B) negative electric charges.
C) unstable isotopes.
D) uncharged particles.
E) atomic particles that are bonded together.

35) Which of the following carries a single positive charge?
A) Proton
B) Neutron
C) Lepton
D) Electron
E) Quark

36) A sodium atom has 11 protons, 12 neutrons, and 11 electrons. What is the atomic mass of this sodium atom?
A) 1
B) 11
C) 12
D) 23
E) 34

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37) A carbon atom has six electrons. How many of these electrons are found in the innermost shell?
A) 2
B) 4
C) 6
D) 8
E) 10

38) Unfilled positions within an electron orbital tend to make the atom
A) unreactive.
B) neutral.
C) less reactive.
D) more reactive.
E) stable.

39) A substance consisting of two or more elements united by chemical bonds in a definite ratio is called a
A) nucleus.
B) mixture.
C) compound.
D) base.
E) valence.

40) The bonds that hold atoms together do so through the sharing or transfer of
A) atomic nuclei.
B) electrons.
C) protons.
D) neutrons.
E) molecules.

41) Which type of chemical bond involves the transfer of electrons?
A) Ionic
B) Covalent
C) Hydrogen
D) Both ionic and covalent
E) Both ionic and hydrogen

42) 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

43) If there is an asymmetric charge distribution on a molecule creating a positively charged sector and a negatively charged sector, the type of molecule resulting would be _____.
A) neutral.
B) charged.
C) polar.
D) hydrophobic.
E) radioactive.

44) A solution that is **slightly** alkaline would have a pH in the range of
A) 8.5.
B) 7.5.
C) 7.0.
D) 6.5.
E) 2.0.

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45) 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.

46) In photosynthesis, light energy is converted into chemical energy plus heat energy. According to the first law of thermodynamics,
A) the amount light energy is greater than the amount of chemical energy and heat energy combined.
B) the amount of energy in heat plus chemical energy is greater than the amount of energy in light.
C) the amount of light energy is equal to the amount of chemical energy and heat energy combined.
D) the amount of light energy is equal to the amount of chemical energy, since both are forms of potential energy.
E) there is no relationship between the amount of energy in light versus the amount of energy in chemical and heat energy since they are all different forms of energy.

47) When an acid and a base are mixed together, which of the following is produced?
A) A salt
B) A mixture
C) An isotope
D) A lipid
E) A carbohydrate

48) 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 choices are correct.

49) Laws pertaining to energy are called laws of _____.
A) metabolism
B) aerodynamics
C) atomic fusion
D) thermodynamics
E) heredity

50) Covalent bonds between molecules inside living cells are often formed or broken through the addition or loss of _____.
A) carbon dioxide
B) oxygen
C) water
D) chlorine and sodium
E) neutrons

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51) Classes of proteins called _____ function as organic catalysts for chemical reactions in cells.
A) peptides
B) enzymes
C) thermal agents
D) disaccharides
E) hormones

52) _____ polymers serve as the genetic memory in living cells.
A) Carbohydrate
B) Nucleic acid
C) Protein
D) Lipid

53) Structural and functional molecules making up a cell have a skeleton of _____.
A) carbon, hydrogen, and oxygen
B) nitrogen and oxygen
C) silicon and oxygen
D) carbon and oxygen
E) calcium phosphate

54) Which of the following is NOT a major component of protoplasm?
A) Carbon
B) Hydrogen
C) Oxygen
D) Nitrogen
E) Sulfur

55) The basic units or subunits of which a protein is composed are _____.
A) fatty acids
B) glycerols
C) monosaccharides
D) amino acids
E) nucleic acids

56) 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

57) 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 sulfur salt
D) a form of starch and a potassium ion
E) a lipid and a carbohydrate

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58) The number of naturally occurring amino acids is _____.
A) 20
B) 600
C) less than 10
D) 35
E) 64

59) What type of chemical bond joins amino acids together?
A) Hydrogen
B) Glycosidic
C) Ionic
D) Peptide
E) Both glycosidic and peptide are correct.

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60) 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

61) If a fatty acid contains three or more double bonds between the carbons in the carbon chains, it would be _____.
A) saturated
B) unsaturated
C) polycarbonated
D) a polymer
E) polyunsaturated

62) While you are using a microscope to examine some unknown cells, you see a structure that immediately makes you realize that the cells cannot be bacteria. What is this structure?
A) Nucleus
B) DNA
C) Cell wall
D) Cell membrane

63) As you investigate unknown cells through the microscope, you note a structure that immediately allows you to eliminate the possibility that the unknown cells are animal cells. What is this structure?
A) Cell wall
B) Cell membrane
C) Nucleus
D) Cytoplasm

64) Your lab group has been growing wheat seedlings for an experiment. Even though your lab group used extreme care in giving the seedlings the same light, soil, temperature, and other variables, some of the seedlings are thriving while others have not grown. What is the most likely explanation for this difference?
A) The seedlings differ genetically.
B) Some of the seedlings must have been exposed to a contaminant.
C) Some of the seedlings must have contracted a disease.
D) Some of the seedlings used more nutrients than others.

65) You are attempting to grow some nasturtium seeds for your garden. You are excited about the seeds because they have been deemed to contain genes that make them fast and easy to grow. You have one packet of seeds, and since you do not need that many, you share some of the seeds with a friend. In a short time she lets you know that her seedlings are growing very well. You are mystified, because your seeds have not grown. What is the most likely reason for this discrepancy?
A) The environment in which you grew the seeds must not have been conducive to plant growth.
B) The seeds must have had a genetic limitation on their growth.
C) The seeds that your friend grew must have received extra fertilizer.
D) The seeds that your friend grew must have received extra water.

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66) What influences a plant's growth?
- A) The environment.
- B) Genetic make-up.
- C) Both the environment and genetic make-up.
- D) Both the environment and learned associations, such as imprinting.

67) How can a plant respond to a nocturnal pollinator such as a bat?
- A) Opening its flowers at night
- B) Producing brightly colored flowers
- C) Making more nectar
- D) Releasing more seeds

68) Carbon, hydrogen, and oxygen combine in a specific ratio to make glucose. What is glucose?
- A) A molecule
- B) An element
- C) A polymer
- D) An atom

69) Is oxygen gas (O_2) a molecule?
- A) Yes, because it contains atoms that are linked together.
- B) No, because the atoms are from the same element.
- C) No, because it contains only two atoms.

70) A potted plant is placed in a room with very little light. The light that is available comes from only one window that is distant from the plant. What will the plant have to do to survive?
- A) Turn its leaves toward the light
- B) Reduce its need for water
- C) Grow deeper roots
- D) Produce more flowers

71) Why is the pH scale so named?
- A) It is based on the potential for hydrogen.
- B) The scale was formulated by Phillip Hemingway.
- C) Acids and bases provide plenty of hydrogen.

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Answer Key

Test name: Chapter 02

1) FALSE
2) TRUE
3) FALSE
4) FALSE
5) TRUE
6) FALSE
7) FALSE
8) FALSE
9) FALSE
10) TRUE
11) FALSE
12) TRUE
13) TRUE
14) TRUE
15) TRUE
16) TRUE
17) FALSE
18) FALSE
19) [A, B]
20) C
21) A
22) C
23) D
24) C
25) E
26) A
27) B
28) E
29) C
30) B
31) B
32) A
33) B
34) B
35) A
36) D
37) A
38) D
39) C
40) B
41) A
42) A
43) C
44) B
45) C
46) C
47) A
48) E
49) D
50) C
51) B
52) B
53) A
54) E
55) D
56) E
57) A
58) A
59) D
60) A
61) E
62) A
63) A
64) A
65) A
66) C
67) A
68) A
69) A
70) A
71) A

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