

For each question there is only ONE correct answer.

Mark with a circle the letter (a, b, c, d or e) of the only correct answer on the Answer Sheet.

1. The basic structural and physiological unit of all living organisms is the

a. aggregate. **b.** organelle. **c.** organism. **d.** membrane. **e.** cell.

2. All living organisms acquire _____ from their environment.

a. food

b. nutrients

c. sunlight

d. heterotrophic nutrition

e. autotrophic nutrition

3. Metabolism is

a. the consumption of energy only.

b. the release of energy only.

c. all conversions of matter and energy taking place in an organism.

d. the production of heat by chemical reactions.

e. the exchange of nutrients and waste products with the environment.

4. The initial accumulation of oxygen in the atmosphere was the result of photosynthesis from an organism most like modern

a. cyanobacteria.

b. algae.

c. mosses.

d. kelp.

e. eukaryotes.

5. Which of the following does *not* represent a correct monomer/polymer pairing?

a. Monosaccharide/polysaccharide

b. Amino acid/protein

c. Triglyceride/cellulose

d. Nucleotide/nucleic acid

e. Monosaccharide/oligosaccharide

6. Starch and glycogen, which are both polysaccharides, differ in their functions in that starch is _____, whereas glycogen _____.

a. the main component for plant structural support; is an energy source for animals

b. a structural material found in plants and animals; forms external skeletons in animals

c. the principle energy storage compound of plants; is the main energy storage of animals

d. a temporary compound used to store glucose; is a highly stable compound that stores complex lipids

e. is the main energy storage of animals; a temporary compound used to store glucose

7. Lipids are

- a. insoluble in water.
- b. important for energy storage.
- c. hydrophobic.
- d. important constituents of biological membranes.
- e. All of the above.

8. A nucleotide contains a pentose sugar, a phosphate group, and

- a. a lipid.
- b. an acid.
- c. a nitrogen-containing base.
- d. an amino acid.
- e. a glycerol.

9. DNA differs from RNA in that

- a. RNA contains uracil instead of thymine.
- b. RNA is single stranded; DNA is double stranded.
- c. RNA leaves the nucleus; DNA does not.
- d. RNA contains ribose; DNA contains deoxyribose.
- e. All of the above

10. What must cells do in order to survive?

- a. Obtain and process energy
- b. Convert genetic information into proteins
- c. Keep certain biochemical reactions separate from one another
- d. Both a and b
- e. All of the above

11. What is the major distinction between a prokaryotic and a eukaryotic cell?

- a. A prokaryotic cell does not have a nucleus, whereas a eukaryotic cell does.
- b. A prokaryotic cell does not have DNA, whereas a eukaryotic cell does.
- c. A prokaryotic cell is smaller than a eukaryotic cell.
- d. Prokaryotic cells have not prospered, whereas eukaryotic cells are evolutionary "successes."
- e. A prokaryotic cell cannot obtain energy from its environment.

12. ATP is

- a. a short-term energy-storage compound.
- b. the cell's principal compound for energy transfers.
- c. synthesized within mitochondria.
- d. the molecule all living cells rely on to do work.
- e. All of the above

13. In all cells, glucose metabolism begins with

- a. glycolysis.
- b. fermentation.
- c. pyruvate oxidation.
- d. the citric acid cycle.
- e. chemosmosis.

14. Plants are

- a. eukaryotic multicellular autotrophs.
- b. eukaryotic unicellular autotrophs.
- c. eukaryotic multicellular heterotrophs.
- d. prokaryotic multicellular autotrophs.
- e. prokaryotic unicellular heterotrophs.

15. Which of the characteristics below links the “green algae” with land plants?

- a. The use of chlorophylls *a* and *b*
- b. Active stomata
- c. Starch as a major storage compound
- d. Cellulose in cell walls
- e. a, c, and d

16. Grasses and other flowering plants with narrow leaves and fibrous or adventitious roots are examples of

- a. monocots.
- b. gymnosperms.
- c. eudicots.
- d. magnoliids.
- e. Both b and c

17. Because all animals must take in nutrients from their environment and digest their food internally, the nutritional mode of animals is called

- a. heterotrophic.
- b. photoheterotrophic.
- c. photoautotrophic.
- d. chemolithotrophic.
- e. chemoautotrophic.

18. Which of the following animals have complete digestive tracts?

- a. Flukes
- b. Tapeworms
- c. Horsehair worms
- d. Annelids
- e. None of the above

19. Which of the following statements about animal behavior is true?
- a. Humans are the only animals that have culture.
 - b. Culture requires learning.
 - c. All elaborate behaviors require learning.
 - d. Stereotypic behaviors are often performed differently in different circumstances.
 - e. None of the above
20. Which of the following statements about the difference between ecology and environmentalism is true?
- a. Only environmentalism includes a consideration of ethical decisions.
 - b. Only environmentalism is inherently focused on human concerns.
 - c. Only environmentalism includes a consideration of economics.
 - d. All of the above
 - e. None of the above

Please, fill in the Answer Sheet.