

Name: _____

Date: _____

1. Which part of the cell provides energy through the process of cellular respiration?

- A. cell wall
 - B. cytoplasm
 - C. mitochondrion
 - D. cell membrane
-

2.

All cells must have a

- A. cell membrane.
 - B. cell wall.
 - C. nucleus.
 - D. nucleoli.
-

3.

Which of the following are **most likely** to be found in all unicellular and multicellular organisms?

- A. nervous systems
 - B. nucleic acids
 - C. chloroplasts
 - D. organs
-

4.

A cell stores food or waste products in

- A. chloroplasts.
 - B. nuclei.
 - C. ribosomes.
 - D. vacuoles.
-

5. In mitosis, interphase is the period when the cell begins preparations to divide. Which of the sequences below follows interphase?

- A. prophase → metaphase → anaphase → telophase
- B. metaphase → prophase → telophase → anaphase
- C. anaphase → telophase → interphase → anaphase
- D. telophase → anaphase → metaphase → prophase

6.

An animal cell containing 32 chromosomes divides by mitosis. Each of the resulting daughter cells goes through mitosis. The cells that result each have

- A. 4 chromosomes.
 - B. 8 chromosomes.
 - C. 16 chromosomes.
 - D. 32 chromosomes.
-

7. What is the final outcome of mitosis?

- A. Reproductive cells called gametes are produced.
 - B. Two gametes unite to form a zygote.
 - C. Chromosomes are paired.
 - D. Nuclear material in the cell divides equally.
-

8.

Which organelle is a membrane-bound sac which stores nutrients within the cell?

- A. endoplasmic reticulum
 - B. Golgi complex
 - C. nucleus
 - D. vacuole
-

9.

Which statement describes passive transport?

- A. Substances harmful to a cell are excreted.
 - B. Large molecules move across a membrane.
 - C. A foreign organism transports substances it needs into the cell.
 - D. A substance moves across a membrane without using cellular energy.
-

10.

Why is mitosis important in multicellular organisms?

- A. Mitosis is essential to cell replication, tissue development, and maintenance of cell size.
 - B. Mitosis ensures that diploid reproductive cells divide twice, forming four haploid daughter cells.
 - C. Mitosis is responsible for passing on genetic variability and beneficial mutations to the next generation.
 - D. Mitosis allows tissue growth in multicellular organisms by resulting in the formation of gametes, which then form new cells.
-

11. Approximately 20 amino acids are essential to living systems. How are amino acids linked together to form proteins?

- A. genetic bonds
 - B. peptide bonds
 - C. acid-base bonds
 - D. hydrogen bonds
-

12. Which are examples of asexual reproduction? I. binary fission II. fertilization III. budding

- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II, and III
-

13.

Osmosis is an example of

- A. cytolysis.
 - B. active transport.
 - C. passive transport.
 - D. a chemical change.
-

14. Which is the primary energy source for **most** animals?

- A. carbohydrates
 - B. proteins
 - C. fiber
 - D. fats
-

15. Passive transport differs from active transport in that passive transport

- A. uses ATP from the cell's mitochondria.
 - B. requires twice as much energy to take place.
 - C. uses energy from the cell's energy reserves.
 - D. does not require energy from ATP to take place.
-

16.

After eating a large meal, the glucose concentration in the blood increases. When this happens, insulin is released to help transport the excess glucose out of the blood and into specific tissues. The blood glucose concentrations then return to normal. This process is an example of

- A. respiration.
 - B. homeostasis.
 - C. metaphase.
 - D. immune response.
-

17.

Different types of environments present different types of problems involving osmotic regulation for the organisms that live there. Which of the following marine environments provides the **most** stable osmotic environment?

- A. deep-sea waters because solutes remain at a fairly constant level
 - B. polar waters because they maintain a nearly constant temperature
 - C. surface waters because they receive more incoming solar radiation
 - D. coastal ocean waters because they receive a great deal of fresh water
-

18. A human skin cell contains 46 chromosomes. After the cell completes the process of mitosis and the cell divides, how many chromosomes will each of the new skin cells contain?

- A. 2
 - B. 23
 - C. 46
 - D. 92
-

19.

A red blood cell was placed in a concentrated salt water solution. It would be expected to

- A. shrink.
- B. swell.
- C. divide.
- D. grow.

20. Photosynthesis is BEST represented by which of the following?

- A. $6\text{H}_2\text{O} + 6\text{CO}_2 \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
 - B. $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
 - C. $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2 + 3\text{O}_2$
 - D. $6\text{COOH} + 3\text{H}_2\text{O} + 3\text{O}_3 \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
-

21. Which of the following is released when ATP is converted to ADP and inorganic phosphate?

- A. energy
 - B. oxygen
 - C. tannic acid
 - D. dihydrogen phosphate
-

22.

Which of the following statements regarding cells is true?

- A. All types of cells have the same life span.
 - B. The size of each type of cell varies greatly.
 - C. Most cells are unable to reproduce independently.
 - D. In humans, each tissue is composed of multiple cell types.
-

23.

In simple diffusion and passive transport,

- A. the cell must expend energy.
 - B. enzymes are required to initiate the process.
 - C. movement occurs against the concentration gradient.
 - D. the process occurs naturally and requires no energy.
-

24.

A red blood cell is placed in a 0.9% salt solution. If the cell remains at equilibrium, neither gaining nor losing water, the solution is

- A. isotonic.
- B. hypotonic.
- C. hypertonic.
- D. hydrostatic.

25. Two bacterial daughter cells of about the same size with identical DNA may be formed by the process of

- A. budding.
 - B. meiosis.
 - C. binary fission.
 - D. vegetative propagation.
-

26.

Carbohydrates are used by the body as a source of quick energy, and are made up of

- A. carbon, hydrogen, and oxygen.
 - B. oxygen, hydrogen, and protein.
 - C. potassium, oxygen, and carbon.
 - D. hydrogen, cholesterol, and oxygen.
-

27.

Energy produced by cellular processes, such as photosynthesis and respiration, is stored by

- A. ATP.
 - B. ARP.
 - C. DNA.
 - D. RNA.
-

28. ATP molecules store energy for cellular activity. When the bond holding the third phosphate is broken,

- A. all cellular activity stops.
- B. energy is released and changes ATP to ADP.
- C. energy dissipates and metabolic functions increase.
- D. tRNA picks up the phosphate for protein synthesis.

Answer Key

1. C) mitochondrion
2. A) cell membrane.
3. B) nucleic acids
4. D) vacuoles.
5. A) prophase metaphase anaphase telophase
6. D) 32 chromosomes.
7. D) Nuclear material in the cell divides equally.
8. D) vacuole
9. D) A substance moves across a membrane without using cellular energy.
10. A) Mitosis is essential to cell replication, tissue development, and maintenance of cell size.
11. B) peptide bonds
12. B) I and III only
13. C) passive transport.
14. A) carbohydrates
15. D) does not require energy from ATP to take place.
16. B) homeostasis.
17. A) deep-sea waters because solutes remain at a fairly constant level
18. C) 46
19. A) shrink.
20. A) $6\text{H}_2\text{O} + 6\text{CO}_2 \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
21. A) energy
22. B) The size of each type of cell varies greatly.

Cells (ScienceGHS GT1)

23. D) the process occurs naturally and requires no energy.

24. A) isotonic.

25. C) binary fission.

26. A) carbon, hydrogen, and oxygen.

27. A) ATP.

28. B) energy is released and changes ATP to ADP.