

Student Name: _____

Class: _____

Date: _____

Instructions: **Read each question carefully and circle the correct answer.**

1. Fill in the blank.

Between an area of high concentration and one of low concentration there is _____.

- A. a concentration gradient
- B. a protein channel
- C. an equilibrium
- D. an isotonic solution

2. Which of the following is true about passive transport?

- A. It does not allow material to diffuse.
- B. It requires energy to create a higher concentration of materials outside the cell.
- C. It requires energy to create a higher concentration of materials inside the cell.
- D. It allows particles to pass without the use of the cell's energy.

3. What is needed for material to enter the cell membrane through active transport?

- A. a higher concentration of material inside the membrane
- B. a hypotonic solution
- C. the cell's energy
- D. a higher concentration of material outside the membrane

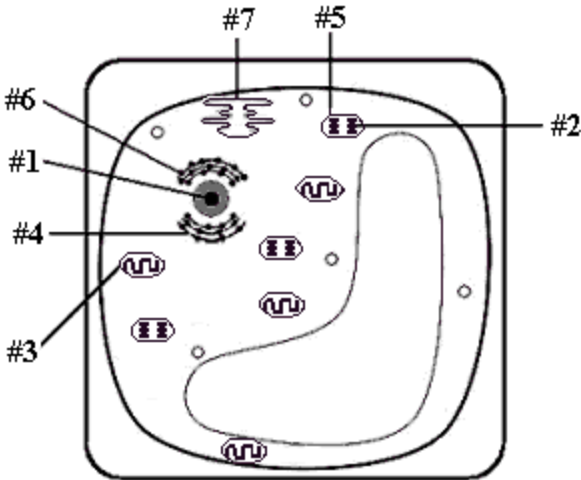
4. What is the term for a fluid moving across a membrane from an area of high concentration to one of low concentration?

- A. endocytosis
- B. facilitated diffusion
- C. active transport
- D. osmosis

5. What is the function of mitochondria?

- A. to protect the nucleus
- B. to digest food
- C. to supply energy to the cell
- D. to carry out photosynthesis

6. What is the name of the organelle labeled #4?



- A. endoplasmic reticulum
- B. nucleolus
- C. mitochondrion
- D. thylakoid

7. What is the only organelle found inside of the nuclear membrane?

- A. cytoplasm
- B. mitochondrion
- C. nucleolus
- D. lysosome

8. Which of the following is found inside the chloroplasts and contains chlorophyll?

- A. vacuoles
- B. thylakoids
- C. mitochondria
- D. lysosomes

9. In which of the following processes does glucose split into lactic acid to form ATP?
- A. the Krebs cycle
 - B. fermentation
 - C. aerobic respiration
 - D. glycolysis
10. What may be the result of lactic acid fermentation when it occurs in humans?
- A. energy spurt from increased ATP production
 - B. intoxication and dizziness
 - C. sore or fatigued muscles
 - D. sickness or death
11. What is the main reason for cellular respiration?
- A. to break down carbon dioxide
 - B. to produce glucose
 - C. to breakdown glucose
 - D. to produce oxygen
12. Put the following stages of respiration in the correct order.
- 1. Krebs cycle
 - 2. Glycolysis
 - 3. Electron transport chain
- A. 2 - 3 - 1
 - B. 1 - 3 - 2
 - C. 3 - 2 - 1
 - D. 2 - 1 - 3
13. What is one way that meiosis is different from mitosis?
- A. In meiosis there is variation in the cells produced, in mitosis an exact copy of the cell is created.
 - B. In meiosis an exact copy of the cell is created, in mitosis there is variation in cells.
 - C. Meiosis occurs in all cells, mitosis occurs only in the sex cells.
 - D. Meiosis produces 46 chromosomes, mitosis produces 23 chromosomes.

14. Which phase of mitosis occurs just after the genetic material replicates?

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

15. Which of the following illustrations represents a cell in metaphase?



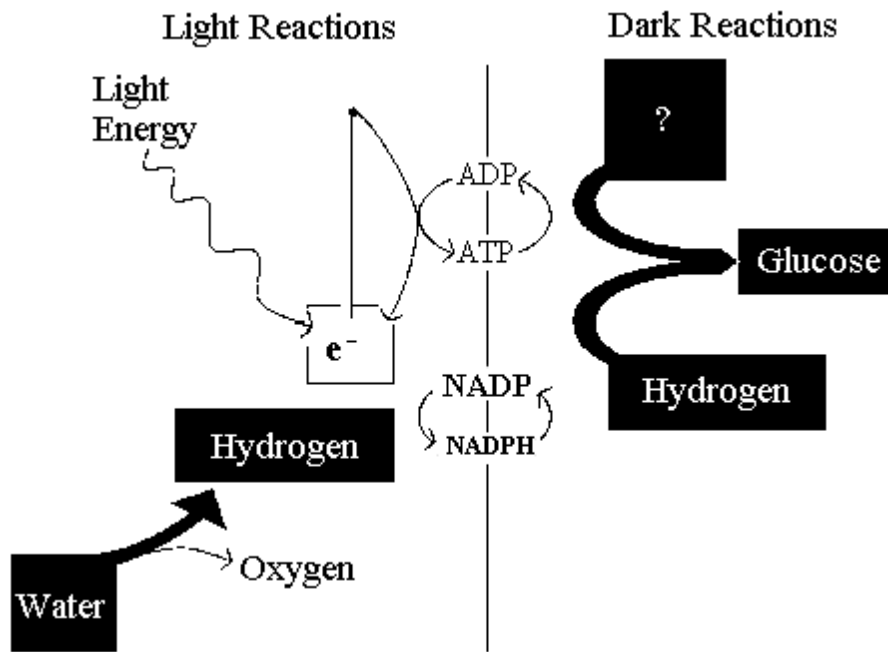
16. In mitosis, what occurs before prophase begins?

- A. The chromosomes move to the outside edges of the cell membrane.
- B. Spindle fibers appear.
- C. Two cells fuse together.
- D. DNA replicates.

17. What is ATP?

- A. a compound that stores useable energy
- B. a chemical that carries hydrogen to be used in the dark reactions
- C. a type of sugar used by plants
- D. a pigment in chloroplasts that absorbs light energy

18. Using the picture showing photosynthesis, what belongs in the blank box?



- A. oxygen
B. carbon dioxide
C. ADP
D. water
19. What occurs during the Calvin Cycle?
- A. light energy is used to split water into hydrogen and oxygen
B. the electron transport chain
C. ATP and NADPH are used to form glucose
D. energy is used to split carbon dioxide into carbon and oxygen atoms
20. Which of the following is NOT a product of the light reactions of photosynthesis?
- A. glucose
B. NADPH
C. oxygen
D. ATP

21. Fill in the blank

Respiration and photosynthesis both provide plants with _____.

- A. food
- B. water
- C. energy
- D. oxygen

22. Which of the following compounds is produced in both photosynthesis and cellular respiration?

- A. glucose
- B. ATP
- C. water
- D. citric acid

23. What types of organisms have cells that undergo both photosynthesis AND cellular respiration?

- A. autotrophs
- B. heterotrophs
- C. invertebrates
- D. vertebrates

24. The equations for photosynthesis and cellular respiration appear very similar. How are they different?

- A. Photosynthesis involves water in the equation, cellular respiration does not.
- B. ATP is part of the equation for cellular respiration, but photosynthesis is not.
- C. Oxygen is a product in the equation for respiration and a reactant in photosynthesis.
- D. The products and reactants are reversed.

25. The skin color of a human may have a genotype of WwDDRr. What kind of trait is this?

- A. a mutated trait
- B. a double allele trait
- C. a polygenic trait
- D. a polyploid trait

26. Why is a male more likely than a female to be color blind?

- A. because color blindness is a recessive trait carried on the X chromosome
- B. because color blindness is a dominant trait carried on the X chromosome
- C. because color blindness is a co-dominant trait in males
- D. because the eye structure of males is more susceptible to color blindness

27. Using a di-hybrid cross and the information below, what is the probability of an offspring being short and yellow?

One parent's genotype is TtGg and the other's is Ttgg.

T = tall G = green
t = short g = yellow

- A. 1/4
B. 1/16
C. 1/8
D. 6/16
28. Where are sex-linked traits located?
- A. on the autosomes
B. on the Y chromosome only
C. on the father's DNA only
D. on the X and/or Y chromosomes
29. How do some protists move about?
- A. They use villi to attach to other organisms.
B. They use jointed appendages.
C. They use paired wings to fly.
D. They use flagella or cilia.
30. Protists are one-celled organisms with nuclei and organelles. Some protists can make their own food, some cannot. Which of the following protists are classified as photosynthetic?
- A. euglenoids
B. protozoa
C. ciliates
D. amoebas
31. Fill in the blank.
- Seaweeds, such as kelp, are _____.
- A. monerans
B. plants
C. protists
D. prokaryotes

32. How are autotrophic bacteria and heterotrophic bacteria different?
- A. autotrophic bacteria make their own food, heterotrophic bacteria consume food
 - B. autotrophic bacteria consume food, heterotrophic bacteria make food
 - C. autotrophic bacteria cause contagious diseases, heterotrophic bacteria do not.
 - D. autotrophic bacteria can not survive in moisture, heterotrophic bacteria can.

33. Which of the following is NOT caused by a virus?

- A. hay fever
- B. measles
- C. influenza
- D. AIDS

34. Fill in the blank.

Lysogeny is the process where viral DNA is attached to and _____ by a host cell.

- A. infected
- B. invaded
- C. separated
- D. carried

35. Fill in the blank.

A virus cannot live without _____.

- A. a plant cell
- B. red blood cells
- C. a host cell
- D. sunlight

36. Put these steps outlining the lytic cycle in correct sequential order.

1. Virus controls the cell and reproduces inside.
2. Thousands of viruses invade more body cells.
3. Cell bursts open and dies.
4. Virus enters the body and invades the cell.

- A. 4 - 2 - 1 - 3
- B. 4 - 1 - 3 - 2
- C. 3 - 2 - 1 - 4
- D. 1 - 4 - 2 - 3

37. Fill in the blank.
The _____ is located on the lowest part of the brainstem, receives nerve impulses and passes them on to the other parts of the brain, and controls involuntary actions such as heartbeat and breathing.
- A. cerebrum
 - B. hypothalamus
 - C. medulla oblongata
 - D. cerebellum
38. What part of the brain coordinates muscle movement and balance and is attached to the brainstem?
- A. medulla oblongata
 - B. cerebellum
 - C. hypothalamus
 - D. cerebrum
39. Arrange this pathway of a reflex action in correct sequential order.
1. Touch hot object and sensory neuron receives stimulus.
 2. Impulse transmitted by motor neuron to muscle in arm.
 3. Impulse transmitted by sensory neuron to spinal cord.
 4. Muscle contracts and hand pulls away.
 5. In spinal cord, interneuron transfers impulse to a motor neuron.
- A. 1 - 5 - 2 - 3 - 4
 - B. 1 - 2 - 4 - 3 - 5
 - C. 1 - 3 - 4 - 2 - 5
 - D. 1 - 3 - 5 - 2 - 4
40. What are the three types of nerve cells?
- A. autonomic, impulse, stimulus
 - B. central, peripheral, reflex
 - C. sensory, motor, and interneuron
 - D. dendrite, axon, synapse