

Practice Exam

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. A scientific hypothesis
 - a. can be based on personal beliefs or opinions.
 - b. can be tested by experiments or observations.
 - c. does not have to be tested to be accepted as correct.
 - d. is a proven fact with much evidence to support it.

- _____ 2. How do scientific theories compare to hypotheses?
 - a. Theories are the same as hypotheses.
 - b. Theories unify a broad range of observations and hypotheses.
 - c. Hypotheses combine the ideas of several theories to explain events.
 - d. Hypotheses are the dominant view among scientists.

- _____ 3. A personal preference or point of view is
 - a. a bias.
 - b. a theory.
 - c. a hypothesis.
 - d. an inference.

- _____ 4. Which of the following is NOT a characteristic of all living things?
 - a. growth and development
 - b. ability to move
 - c. response to the environment
 - d. ability to reproduce

- _____ 5. Cells in multicellular organisms have many different sizes and shapes. These differences in cells is called cell specialization. Cell specialization allows cells to
 - a. reproduce.
 - b. perform different functions.
 - c. respond to their environment.
 - d. be less complex.

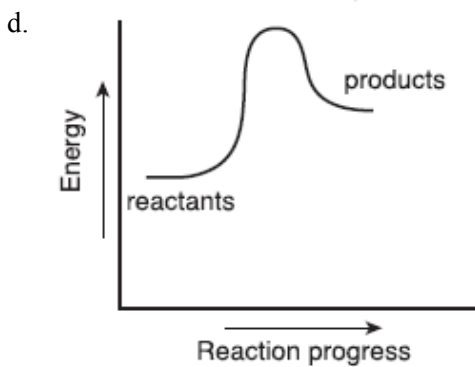
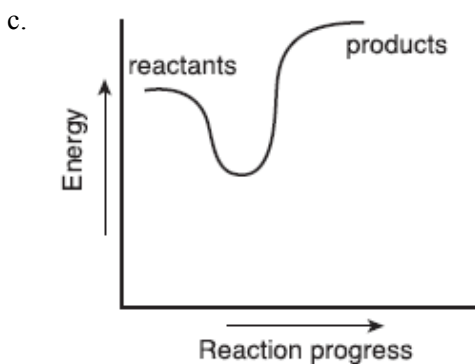
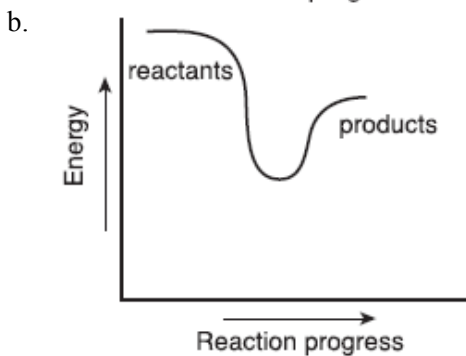
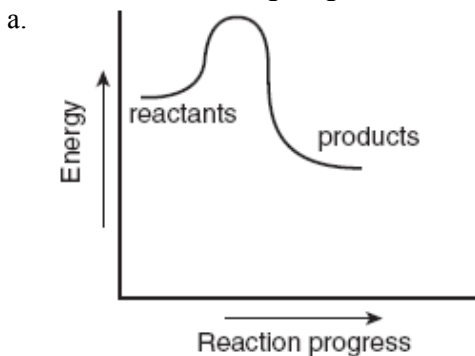
- _____ 6. The process by which organisms keep everything inside their bodies within certain limits is called
 - a. homeostasis.
 - b. evolution.
 - c. metabolism.
 - d. photosynthesis.

- _____ 7. What are the smallest objects that biologists study?
 - a. cells
 - b. body organs
 - c. molecules
 - d. organisms

- _____ 8. The three particles that make up atoms are
- protons, neutrons, and isotopes.
 - neutrons, isotopes, and electrons.
 - positives, negatives, and neutrals.
 - protons, neutrons, and electrons.
- _____ 9. Isotopes are atoms of the same element with the same number of protons and a different number of
- electrons.
 - molecules.
 - neutrons.
 - ions.
- _____ 10. If an atom contains 11 protons and 12 neutrons, its atomic number is
- 1.
 - 11.
 - 12.
 - 23.
- _____ 11. Which of the following is a substance formed by the chemical joining of two or more elements in definite amounts?
- compound
 - isotope
 - nucleus
 - enzyme
- _____ 12. What type of ion forms when an atom loses electrons?
- neutral
 - positive
 - negative
 - radioactive
- _____ 13. A solution is a
- combination of isotopes.
 - chemical reaction.
 - mixture in which the substances are evenly spread out.
 - mixture in which undissolved substances do not settle out.
- _____ 14. When salt is dissolved in water, water is the
- reactant.
 - solution.
 - solute.
 - solvent.
- _____ 15. A map of eastern North America, showing the pH of rainfall in the various states, indicates that the pH of rain in New York State varies from 4.22 to 4.40. According to these figures, the most acidic rainfall in New York State has a pH of
- 4.22.
 - 4.30.
 - 4.35.
 - 4.40.

- ___ 16. Solutions that have more OH^- than H^+ ions are
- reactants.
 - acids.
 - bases.
 - enzymes.
- ___ 17. Amino acid is to protein as
- fat is to lipid.
 - DNA is to RNA.
 - sugar is to fat.
 - simple sugar is to starch.
- ___ 18. Which of the following is NOT a monomer?
- a glucose molecule
 - an amino acid
 - a nucleotide
 - a protein
- ___ 19. In chemical reactions, atoms are
- created.
 - destroyed.
 - rearranged.
 - neutralized.
- ___ 20. Identify the reactant(s) in the chemical reaction, $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$.
- CO_2 , H_2O , and H_2CO_3
 - CO_2 and H_2O
 - H_2CO_3
 - CO_2

21. Which of the following diagrams correctly shows the reaction pathway of a reaction that absorbs energy?



22. Which of the following statements is true about catalysts?

- a. Catalysts slow down the rate of chemical reactions.
- b. All catalysts are enzymes.
- c. Catalysts are used up during a chemical reaction.
- d. Catalysts lower the activation energy of a chemical reaction.

- ___ 23. Looking at a cell under a microscope, you note that it is a prokaryote. How do you know?
- a. The cell lacks cytoplasm.
 - b. The cell lacks a cell membrane.
 - c. The cell lacks a nucleus.
 - d. The cell lacks genetic material.
- ___ 24. Which of the following organisms are prokaryotes?
- a. plants
 - b. animals
 - c. bacteria
 - d. fungi

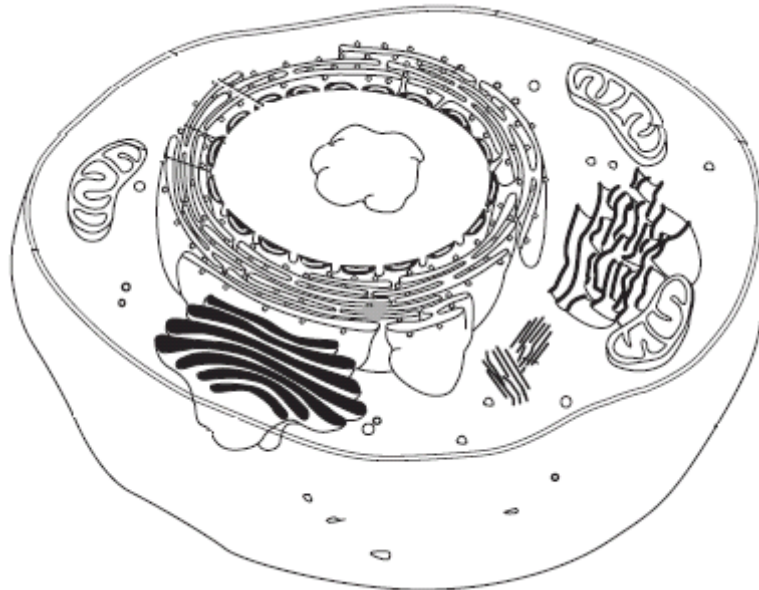


Figure 7-1

- ___ 25. Which of the following conclusions could you draw about the cell shown in Figure 7-1?
- a. The cell is eukaryotic because it has a nucleus.
 - b. The cell is prokaryotic because it has a nucleus.
 - c. The cell is eukaryotic because it does not have a nucleus.
 - d. The cell is prokaryotic because it does not have a nucleus.
- ___ 26. Which organelle breaks down organelles that are no longer useful?
- a. Golgi apparatus
 - b. lysosome
 - c. endoplasmic reticulum
 - d. mitochondrion

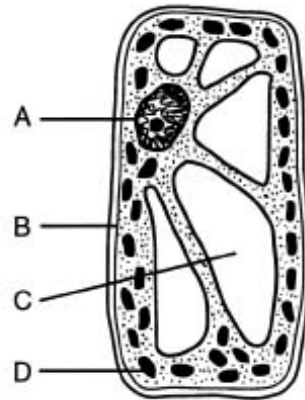


Figure 7-2

- ___ 27. Which structure in the cell shown in Figure 7-2 above stores materials, such as water, salts, proteins, and carbohydrates?
- structure A
 - structure B
 - structure C
 - structure D
- ___ 28. Which organelles are involved in energy conversion?
- mitochondria and chloroplasts
 - mitochondria and ribosomes
 - smooth and rough endoplasmic reticulum
 - Golgi apparatus and chloroplasts
- ___ 29. The primary function of the cell wall is to
- support and protect the cell.
 - store DNA.
 - direct the activities of the cell.
 - help the cell move.
- ___ 30. The cell membrane contains channels and pumps that help move materials from one side to the other. What are these channels and pumps made of?
- carbohydrates
 - lipids
 - bilipids
 - proteins
- ___ 31. Diffusion occurs because
- molecules are attracted to one another.
 - molecules constantly move and collide with each other.
 - cellular energy forces molecules to collide with each other.
 - cellular energy pumps molecules across the cell membrane.

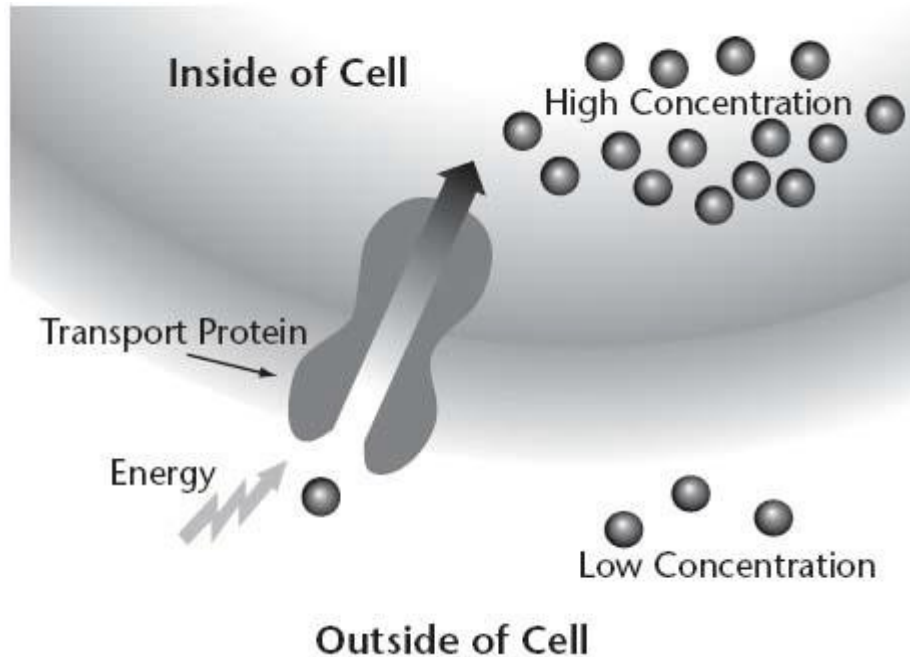


Figure 7-4

- ___ 32. Which means of particle transport is shown in Figure 7-4 above?
- diffusion
 - osmosis
 - facilitated diffusion
 - active transport
- ___ 33. Energy is released from ATP when
- a phosphate group is added.
 - adenine bonds to ribose.
 - ATP is exposed to sunlight.
 - a phosphate group is removed.
- ___ 34. Organisms, such as plants, that make their own food are called
- autotrophs.
 - heterotrophs.
 - thylakoids.
 - pigments.
- ___ 35. Organisms that cannot make their own food and must obtain energy from external sources are called
- autotrophs.
 - heterotrophs.
 - thylakoids.
 - plants.
- ___ 36. Plants gather energy with light-absorbing molecules called
- pigments.
 - thylakoids.
 - chloroplasts.
 - glucose.

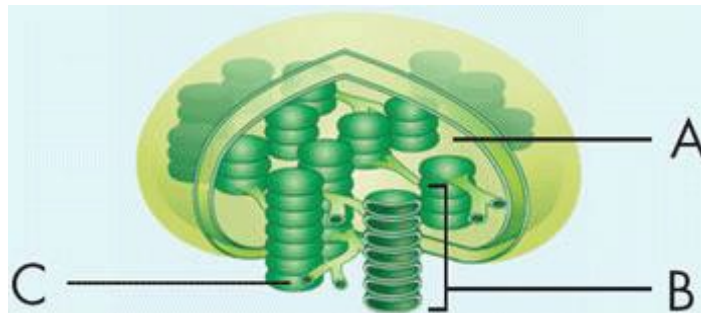


Figure 8-2

- ___ 37. Which structure in Figure 8-2 represents a single thylakoid?
- structure A
 - structure B
 - structure C
 - structure D
- ___ 38. A student is collecting the gas given off from a plant in bright sunlight at a temperature of 27°C. The gas being collected is probably
- oxygen.
 - carbon dioxide.
 - ATP.
 - glucose.

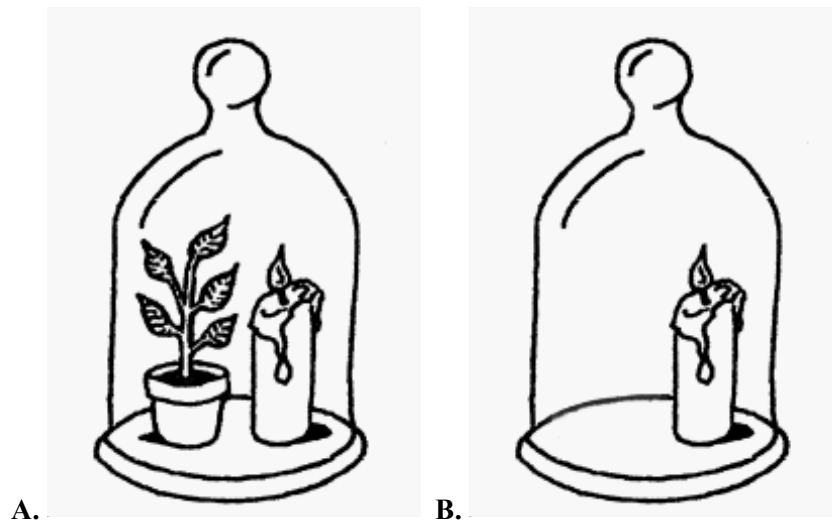


Figure 8-4

- ___ 39. In Figure 8-4, why might the candle in jar A burn longer than the candle in jar B?
- Carbon dioxide produced by the plant allows the candle to burn longer.
 - Chlorophyll produced by the plant allows the candle to burn longer.
 - Glucose produced by the plant allows the candle to burn longer.
 - Oxygen produced by the plant allows the candle to burn longer.

- _____ 40. What is the correct equation for cellular respiration?
- $6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Energy}$
 - $6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 + \text{Energy} \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
 - $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 + \text{Energy}$
 - $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Energy} \rightarrow 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6$
- _____ 41. Cellular respiration is called an aerobic process because it requires
- light.
 - exercise.
 - oxygen.
 - glucose.
- _____ 42. Photosynthesis is to chloroplasts as cellular respiration is to
- chloroplasts.
 - cytoplasm.
 - mitochondria.
 - nuclei.
- _____ 43. The starting molecule for glycolysis is
- ADP.
 - pyruvic acid.
 - citric acid.
 - glucose.
- _____ 44. The two main types of fermentation are called
- alcoholic and aerobic.
 - aerobic and anaerobic.
 - alcoholic and lactic acid.
 - lactic acid and anaerobic.
- _____ 45. During which phase in the cell cycle does mitosis happen?
- G₁ phase
 - G₂ phase
 - M phase
 - S phase
- _____ 46. When during the cell cycle is a cell's DNA replicated?
- G₁ phase
 - G₂ phase
 - S phase
 - M phase

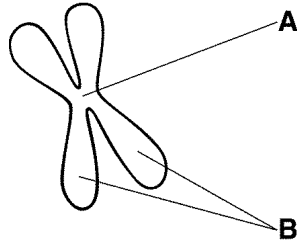


Figure 10-5

- ___ 47. The structure labeled A in Figure 10-5 is called the
 - a. centromere.
 - b. centriole.
 - c. sister chromatid.
 - d. spindle.

- ___ 48. The first phase of mitosis is called
 - a. prophase.
 - b. anaphase.
 - c. metaphase.
 - d. interphase.

- ___ 49. Cancer is a disorder in which some cells have lost the ability to control their
 - a. size.
 - b. spindle fibers.
 - c. growth rate.
 - d. surface area.

- ___ 50. Cancer cells form masses of cells called
 - a. tumors.
 - b. cyclins.
 - c. growth factors.
 - d. p53.

