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# CHAPTER 4 TEST: Cell Structure and Function

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_

## Circle the best answer.

- Which is not true of the central vacuole?
  - It is a large, fluid-filled vacuole.
  - It can consume up to 90% of a cell's volume.
  - It forms from smaller vacuoles fusing together.
  - Its primary function is to store glycogen as starch.
- As a cell becomes smaller, its surface area \_\_\_\_\_ relative to its volume.
  - Increases
  - Decreases
  - Stays the same
  - Becomes less important
- Which of the following is not part of the cell theory?
  - All living things are made of one or more cells.
  - All cells contain the same organelles.
  - Cells are the basic units of structure and function in organisms.
  - All cells arise from existing cells.
- A cell's shape, size, and organization are determined by
  - Its environment
  - Its function
  - Its temperature and pH
  - The quantity of phospholipids in its membrane
- Which of the following would you not find in an animal cell?
  - Phospholipids
  - Endoplasmic reticulum
  - Nucleoid
  - Mitochondria
- Which part of the plasma membrane helps cells recognize each other?
  - Phospholipids
  - Enzymes
  - Glycoproteins
  - Sterols
- Viruses, bacteria, and old organelles within a cell are broken down by the
  - Ribosomes
  - Lysosomes
  - Rough ER
  - Smooth ER
- Organelles that are surrounded by a lipid bilayer and contain DNA are the
  - Nucleus, chloroplasts, and mitochondria
  - Nucleus, endoplasmic reticulum, and ribosomes
  - Nucleus, endoplasmic reticulum, and lysosomes
  - Nucleus and Golgi body
- Integral membrane proteins perform all of the listed activities except
  - Transmitting signals across the cell membrane
  - Identifying the cell type to surrounding cells
  - Functioning as enzymes assisting chemical reactions inside the cell
  - Helping move substances across the cell membrane
- The nucleus of a cell contains all of the following except
  - Chromosomes
  - Mitochondria
  - DNA
  - RNA

11. The end products of photosynthesis include
  - a. Carbon dioxide
  - b. Oxygen and carbohydrates
  - c. Proteins and water
  - d. Carbon dioxide and sugars
12. What type of molecule can be found in/on the plasma membrane?
  - a. Carbohydrate
  - b. Protein
  - c. Phospholipid
  - d. All of the above
13. The lipid bilayer of the plasma membrane
  - a. Provides a boundary between the cell and its surroundings
  - b. Contains sterols
  - c. Transports substances into and out of the cell
  - d. All of the above
14. The organelles most numerous in the kidneys and liver that neutralize free radicals are
  - a. Lysosomes
  - b. Chromosomes
  - c. Peroxisomes
  - d. Glyoxysomes
15. The organelle responsible for modifying and packaging molecules for export is the
  - a. Endoplasmic reticulum
  - b. Golgi apparatus
  - c. Ribosome
  - d. Mitochondria
16. The cytoskeleton is made up of
  - a. Microtubules
  - b. Mitochondria
  - c. Phospholipids
  - d. All of the above
17. The scientist who described cells as "many little boxes" was
  - a. Robert Hooke
  - b. Anton van Leeuwenhoek
  - c. Theodor Schwann
  - d. Rudolf Virchow
18. The purpose of sterols in the plasma membrane is to
  - a. Transport compounds across the membrane
  - b. Act as a hydrophobic barrier to substances trying to pass through
  - c. Act as glycoprotein cell markers
  - d. Insulate the cell and give it structure
19. Chromoplasts
  - a. Contain a variety of pigments except chlorophyll
  - b. May be specialized for storing starch or different plant-specific compounds
  - c. Are found only in green photosynthetic plants
  - d. Work with lysosomes to break down microbes invading the plant cell
20. The smooth endoplasmic reticulum
  - a. Is very abundant in cells producing large amounts of protein
  - b. Builds lipids such as cholesterol and functions in detoxification in liver cells
  - c. Serves as a site for ribosomal attachment
  - d. Consists of one small and one large subunit assembled in the nucleolus
21. Lysosomes
  - a. Usually contain digestive enzymes
  - b. Destroy old or broken down cells and organelles
  - c. Break down bacteria that get into a cell
  - d. More than one of the above
22. The primary function of mitochondria is to
  - a. Modify and package proteins for export
  - b. Produce energy for cell activity
  - c. Control most of the functions of a eukaryotic cell
  - d. More than one of the above

**True or False: Please clearly mark T for true or F for false on the blank line.**

- \_\_\_\_\_ 23. Mitochondria contain their own DNA for organelle replication.
- \_\_\_\_\_ 24. DNA is found in the nucleus in the form of chromatin during cell division.
- \_\_\_\_\_ 25. The diameter of most cells is between 10 and 50 microns.
- \_\_\_\_\_ 26. Some cells use cilia and/or flagella for locomotion.
- \_\_\_\_\_ 27. Glucose is stored as cellulose in animal cells.
- \_\_\_\_\_ 28. Ribosomes are partially assembled in the nucleolus.
- \_\_\_\_\_ 29. Hydrophilic phospholipid heads make up the interior of the cell membrane.

**Fill in the Blanks**

- 30. A cell's \_\_\_\_\_ influences its shape, size and internal organization.
- 31. The statement "Cells only arise from other cells" is part of the \_\_\_\_\_.
- 32. Cilia and \_\_\_\_\_ are structures that enable cell movement.
- 33. The two bundles of microtubules located in the centrosome that function in nuclear division are called \_\_\_\_\_.
- 34. Ribosomes are found on the \_\_\_\_\_ endoplasmic reticulum.
- 35. ATP is an acronym for \_\_\_\_\_.
- 36. The model that best describes the plasma membrane is the \_\_\_\_\_ model.
- 37. Explain the two functions of DNA in cells.

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- 38. Why can small cells move substances in and out more readily than large cells?

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- 39. Why are mitochondria important to the functioning of muscle cells in eukaryotes?

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- 40. Describe the structure, elements, and function of the cytoskeleton.

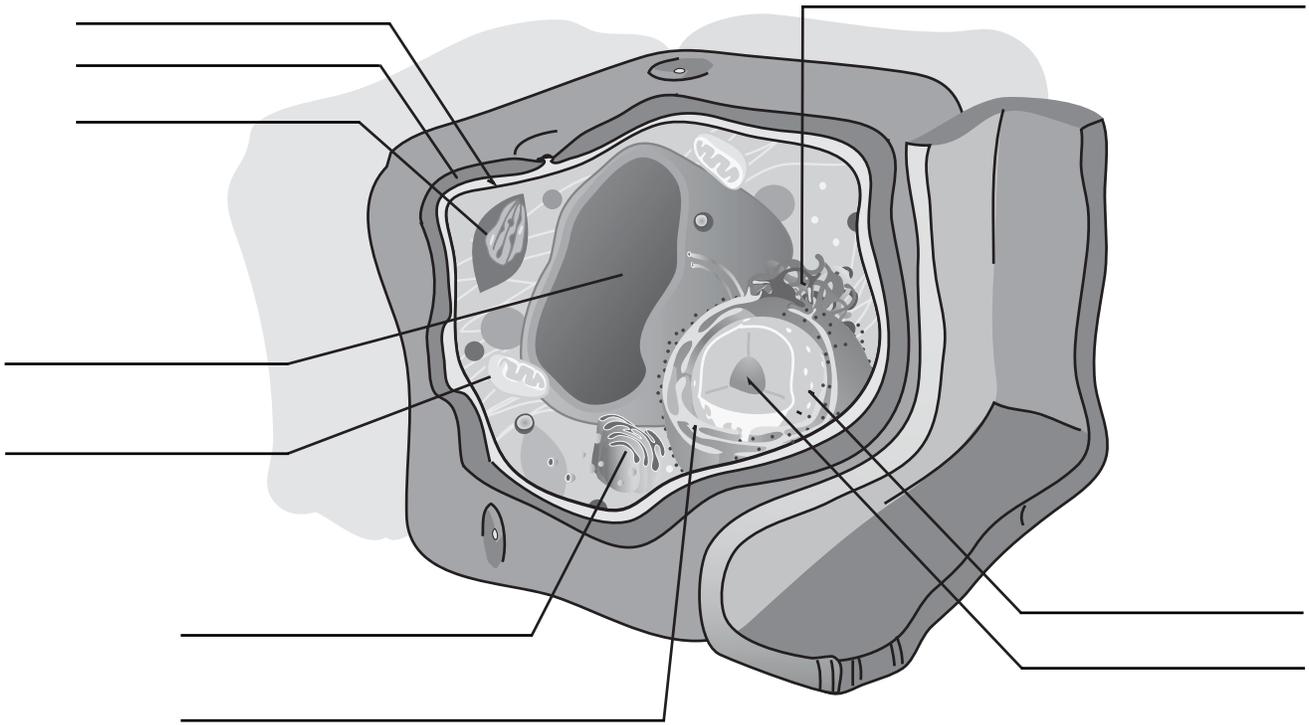
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Label the following diagrams.

41. What type of cell is illustrated below? \_\_\_\_\_



42. What type of cell is illustrated below? \_\_\_\_\_

