



Practice Worksheet on Cells

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Subject: Biology

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Long Answer Questions

1. What is a cell and what is its significance in living organisms?
2. Who coined the term 'cell' and in what year?
3. Explain the importance of studying life from a cellular perspective.
4. Discuss the wide range of sizes observed in cells, providing examples.
5. Describe the cytoplasm and the nucleus of a cell, and their roles.
6. Provide examples of single-celled and multicellular organisms.
7. Why are viruses considered non-cellular?

8. Compare the approximate number of cells in a newborn versus an adult human and how cell numbers vary within an organism.

Multiple Choice Questions

1. Who first used the term "cell" to describe the basic unit of life?

- a) Robert Hooke
- b) Anton van Leeuwenhoek
- c) Louis Pasteur
- d) Gregor Mendel

2. In what year did Robert Hooke first use the term "cell"?

- a) 1500
- b) 1665
- c) 1750
- d) 1850

3. What unit of measurement is commonly used to describe the size of cells?

- a) centimeters
- b) millimeters
- c) micrometers
- d) nanometers

4. Which of the following is NOT made of cells?

- a) Viruses
- b) Bacteria
- c) Plants
- d) Animals

5. Which cell structure contains the cell's genetic material?

- a) Cytoplasm
- b) Cell membrane
- c) Nucleus
- d) Cell wall

6. A group of similar cells that work together is called a:

- a) Organ
- b) Tissue
- c) Organ system
- d) Organism

7. What is a typical size range for eukaryotic cells?

- a) 0.01 mm
- b) 10 cm
- c) 100 μm
- d) 1 m

8. Which of the following is true of ALL cells?

- a) All cells have a cell wall
- b) All cells have chloroplasts
- c) All cells have a cell membrane
- d) All cells have a nucleus

Answer Key

Long Answer Questions - Expected Responses

1. What is a cell and what is its significance in living organisms?

Expected Answer: The basic unit of life; all living organisms (except viruses) are made of cells. They can be single-celled or multicellular.

2. Who coined the term 'cell' and in what year?

Expected Answer: Robert Hooke, in 1665, is credited with introducing the term 'cell' into science after his microscopic observations of cork.

3. Explain the importance of studying life from a cellular perspective.

Expected Answer: Studying life from a cellular perspective is foundational to modern biological research, allowing us to understand life processes at their most fundamental level.

4. Discuss the wide range of sizes observed in cells, providing examples.

Expected Answer: Cells vary greatly in size; from tiny bacteria (0.1-0.25 μm) to the giant ostrich egg cell (155 mm). Most eukaryotic cells are between 10 and 100 μm in diameter.

5. Describe the cytoplasm and the nucleus of a cell, and their roles.

Expected Answer: The cytoplasm is the jelly-like substance that fills the cell, containing the organelles. The nucleus is the control center containing the cell's genetic material.

6. Provide examples of single-celled and multicellular organisms.

Expected Answer: Protozoa, bacteria, some algae, and fungi are examples of single-celled organisms. Humans, plants, and most animals are multicellular.

7. Why are viruses considered non-cellular?

Expected Answer: Viruses are acellular; they lack the basic structure and metabolic functions of cells and require a host cell to replicate.

8. Compare the approximate number of cells in a newborn versus an adult human and how cell numbers vary within an organism.

Expected Answer: A newborn baby has about 2×10^{12} cells, while an adult human has approximately 10^{14} cells; the number varies depending on the type of tissue.

Multiple Choice Questions - Correct Answers

1. Who first used the term "cell" to describe the basic unit of life?

Correct Answer: Robert Hooke

2. In what year did Robert Hooke first use the term "cell"?

Correct Answer: 1665

3. What unit of measurement is commonly used to describe the size of cells?

Correct Answer: micrometers

4. Which of the following is NOT made of cells?

Correct Answer: Viruses

5. Which cell structure contains the cell's genetic material?

Correct Answer: Nucleus

6. A group of similar cells that work together is called a:

Correct Answer: Tissue

7. What is a typical size range for eukaryotic cells?

Correct Answer: 100 μm

8. Which of the following is true of ALL cells?

Correct Answer: All cells have a cell membrane