

Chapter 5: The Fundamental Unit of Life

Quiz

The Fundamental Unit of Life

1. Who first discovered cells?

- ☐ Robert Hooke
- ☐ Robert Brown
- ☐ Leeuwenhoek
- ☐ Schleiden

Answer: Robert Hooke

2. What is the Latin word for 'a little room'?

- ☐ Cell
- ☐ Nucleus
- ☐ Organelle
- ☐ Cytoplasm

Answer: Cell

3. Who proposed that all cells arise from pre-existing cells?

- ☐ Virchow
- ☐ Schwann
- ☐ Schleiden
- ☐ Hooke

Answer: Virchow

4. When was the electron microscope discovered?

- ☐ 1940
- ☐ 1665
- ☐ 1831
- ☐ 1855

Answer: 1940

5. Who discovered the nucleus in the cell?

- ☐ Robert Brown
- ☐ Robert Hooke
- ☐ Purkinje
- ☐ Leeuwenhoek

Answer: Robert Brown

What are Living Organisms Made Up of?

1. Organisms made of a single cell are called?

- ☐ Unicellular
- ☐ Multicellular
- ☐ Prokaryotic
- ☐ Eukaryotic

Answer: Unicellular

2. Which of the following is a unicellular organism?

- ☐ Amoeba
- ☐ Fungi
- ☐ Plants
- ☐ Animals

Answer: Amoeba

3. What is the specific function of nerve cells related to?

- ☐ Shape
- ☐ Size
- ☐ Color
- ☐ Smell

Answer: Shape

4. What are the specific components within a cell known as?

- ☐ Cell organelles
- ☐ Organs
- ☐ Tissues
- ☐ Molecules

Answer: Cell organelles

5. Where is division of labour seen?

- ☐ Both in multicellular organisms and within a single cell
- ☐ Only in multicellular organisms
- ☐ Only within a single cell
- ☐ None of the above

Answer: Both in multicellular organisms and within a single cell

What is a Cell Made Up of?

1. What are the three features in almost every cell?

- ☐ Plasma membrane, nucleus and cytoplasm
- ☐ Cell wall, nucleus and cytoplasm
- ☐ Plasma membrane, cell wall and nucleus
- ☐ Plasma membrane, cell wall and cytoplasm

Answer: Plasma membrane, nucleus and cytoplasm

2. What is the jelly-like substance that fills the cell?

- ☐ Cytoplasm
- ☐ Protoplasm
- ☐ Nucleoplasm
- ☐ Endoplasm

Answer: Cytoplasm

3. What is the large, centrally located spherical component of the cell?

- ☐ Nucleus
- ☐ Vacuole
- ☐ Plastid
- ☐ Mitochondrion

Answer: Nucleus

4. What is the outermost covering of the cell?

- ☐ Plasma membrane
- ☐ Cell wall
- ☐ Nuclear membrane
- ☐ Cytoskeleton

Answer: Plasma membrane

5. What are the specialized structures within the cytoplasm called?

- ☐ Cell organelles
- ☐ Organs
- ☐ Tissues
- ☐ Molecules

Answer: Cell organelles

Plasma Membrane or Cell Membrane

1. The plasma membrane is called a selectively permeable membrane because:

- ☐ It allows entry and exit of some materials and prevents movement of others
- ☐ It allows entry and exit of all materials
- ☐ It prevents entry and exit of all materials
- ☐ None of the above

Answer: It allows entry and exit of some materials and prevents movement of others

2. The movement of water molecules through a selectively permeable membrane is called?

- ☐ Osmosis
- ☐ Diffusion
- ☐ Endocytosis
- ☐ Exocytosis

Answer: Osmosis

3. A cell will swell up if the surrounding solution is?

- ☐ Hypotonic
- ☐ Isotonic
- ☐ Hypertonic
- ☐ None of the above

Answer: Hypotonic

4. The process by which a cell engulfs food is known as?

- ☐ Endocytosis
- ☐ Exocytosis
- ☐ Osmosis
- ☐ Diffusion

Answer: Endocytosis

5. The plasma membrane is made up of:

- ☐ Lipids and proteins
- ☐ Carbohydrates and proteins
- ☐ Lipids and carbohydrates
- ☐ Carbohydrates and fats

Answer: Lipids and proteins

Cell Wall

1. Which cells have a cell wall?

- ☐ Plant cells
- ☐ Animal cells
- ☐ Both plant and animal cells
- ☐ None of the above

Answer: Plant cells

2. The plant cell wall is mainly composed of?

- ☐ Cellulose
- ☐ Protein
- ☐ Lipid
- ☐ Starch

Answer: Cellulose

3. The phenomenon of shrinkage of cell contents away from the cell wall is known as?

- ☐ Plasmolysis
- ☐ Osmosis
- ☐ Diffusion
- ☐ Endocytosis

Answer: Plasmolysis

4. What does the cell wall provide to plants?

- ☐ Structural strength
- ☐ Energy
- ☐ Food
- ☐ Color

Answer: Structural strength

5. The cell wall permits the cells of which organisms to withstand very dilute external media without bursting?

- ☐ Plants, fungi and bacteria
- ☐ Only plants
- ☐ Only fungi
- ☐ Only bacteria

Answer: Plants, fungi and bacteria

Nucleus

1. The nucleus has a double layered covering called?

- ☐ Nuclear membrane
- ☐ Plasma membrane
- ☐ Cell wall
- ☐ Cytoplasm

Answer: Nuclear membrane

2. Functional segments of DNA are called?

- ☐ Genes
- ☐ Chromosomes
- ☐ Chromatin
- ☐ Nucleoid

Answer: Genes

3. Organisms whose cells lack a nuclear membrane are called?

- ☐ Prokaryotes
- ☐ Eukaryotes
- ☐ Unicellular
- ☐ Multicellular

Answer: Prokaryotes

4. The undefined nuclear region in prokaryotes is called?

- ☐ Nucleoid
- ☐ Nucleus
- ☐ Chromosome
- ☐ Chromatin

Answer: Nucleoid

5. The nucleus plays a central role in?

- ☐ Cellular reproduction
- ☐ Protein synthesis
- ☐ Energy production
- ☐ Lipid synthesis

Answer: Cellular reproduction

Cytoplasm

1. The fluid content inside the plasma membrane is called?

- ☐ Cytoplasm
- ☐ Protoplasm
- ☐ Nucleoplasm
- ☐ Endoplasm

Answer: Cytoplasm

2. Which of the following is true for prokaryotes?

- ☐ Membrane-bound cell organelles are absent
- ☐ Membrane-bound cell organelles are present
- ☐ Nuclear membrane is present
- ☐ None of the above

Answer: Membrane-bound cell organelles are absent

3. Viruses lack any membranes and hence?

- ☐ Do not show characteristics of life until they enter a living body
- ☐ Show characteristics of life
- ☐ Are unicellular
- ☐ Are multicellular

Answer: Do not show characteristics of life until they enter a living body

4. The cytoplasm contains many specialised?

- ☐ Cell organelles
- ☐ Organs
- ☐ Tissues
- ☐ Molecules

Answer: Cell organelles

5. Eukaryotic cells have?

- ☐ Nuclear membrane as well as membrane-enclosed organelles
- ☐ No nuclear membrane
- ☐ No membrane-enclosed organelles
- ☐ None of the above

Answer: Nuclear membrane as well as membrane-enclosed organelles

Cell Organelles

1. Which of the following are visible only with an electron microscope?

- ☐ Some organelles
- ☐ All organelles
- ☐ No organelles
- ☐ None of the above

Answer: Some organelles

2. Which of the following is a feature of eukaryotic cells?

- ☐ Membrane-bound little structures (or 'organelles') within themselves
- ☐ No membrane-bound organelles
- ☐ A nucleoid
- ☐ None of the above

Answer: Membrane-bound little structures (or 'organelles') within themselves

3. Which of the following will we discuss as cell organelles?

- ☐ Endoplasmic reticulum, Golgi apparatus, lysosomes, mitochondria and plastids
- ☐ Only endoplasmic reticulum
- ☐ Only Golgi apparatus
- ☐ Only lysosomes

Answer: Endoplasmic reticulum, Golgi apparatus, lysosomes, mitochondria and plastids

4. The use of membrane-bound little structures is to?

- ☐ Keep the activities of different kinds separate from each other
- ☐ Mix the activities of different kinds
- ☐ Stop all activities
- ☐ None of the above

Answer: Keep the activities of different kinds separate from each other

5. Large and complex cells need a lot of chemical activities to?

- ☐ Support their complicated structure and function
- ☐ Support their simple structure and function
- ☐ Destroy their structure and function
- ☐ None of the above

Answer: Support their complicated structure and function

Endoplasmic Reticulum (ER)

1. The two types of ER are?

- ☐ Rough ER and Smooth ER
- ☐ Long ER and Short ER
- ☐ Round ER and Flat ER
- ☐ None of the above

Answer: Rough ER and Smooth ER

2. RER looks rough because of?

- ☐ Ribosomes
- ☐ Lipids
- ☐ Proteins
- ☐ Carbohydrates

Answer: Ribosomes

3. SER helps in the manufacture of?

- ☐ Fat molecules, or lipids
- ☐ Proteins
- ☐ Carbohydrates
- ☐ None of the above

Answer: Fat molecules, or lipids

4. The process of building the cell membrane is known as?

- ☐ Membrane biogenesis
- ☐ Photosynthesis
- ☐ Respiration
- ☐ Endocytosis

Answer: Membrane biogenesis

5. In the liver cells of vertebrates, which ER plays a crucial role in detoxifying many poisons and drugs?

- ☐ SER
- ☐ RER
- ☐ Both SER and RER
- ☐ None of the above

Answer: SER

Golgi Apparatus

1. The Golgi apparatus was first described by?

- ☐ Camillo Golgi
- ☐ Robert Hooke
- ☐ Robert Brown
- ☐ Leeuwenhoek

Answer: Camillo Golgi

2. The Golgi apparatus consists of a system of membrane-bound vesicles arranged in stacks called?

- ☐ Cisterns
- ☐ Vesicles
- ☐ Tubules
- ☐ Vacuoles

Answer: Cisterns

3. The Golgi apparatus is involved in the formation of?

- ☐ Lysosomes
- ☐ Ribosomes
- ☐ Mitochondria
- ☐ Plastids

Answer: Lysosomes

4. The functions of the Golgi apparatus include?

- ☐ Storage, modification and packaging of products
- ☐ Protein synthesis
- ☐ Energy production
- ☐ Lipid synthesis

Answer: Storage, modification and packaging of products

5. In the Golgi apparatus, complex sugars may be made from?

- ☐ Simple sugars
- ☐ Proteins
- ☐ Lipids
- ☐ None of the above

Answer: Simple sugars

Lysosomes

1. Lysosomes are also known as the?

- ☐ 'Suicide bags' of a cell
- ☐ 'Powerhouses' of a cell
- ☐ 'Kitchens' of a cell
- ☐ 'Control centers' of a cell

Answer: 'Suicide bags' of a cell

2. Lysosomes contain powerful?

- ☐ Digestive enzymes
- ☐ Synthetic enzymes
- ☐ Respiratory enzymes
- ☐ None of the above

Answer: Digestive enzymes

3. Lysosomes are a kind of?

- ☐ Waste disposal system of the cell
- ☐ Energy production system of the cell
- ☐ Protein synthesis system of the cell
- ☐ Lipid synthesis system of the cell

Answer: Waste disposal system of the cell

4. The enzymes in lysosomes are made by?

- ☐ RER
- ☐ SER
- ☐ Golgi apparatus
- ☐ Mitochondria

Answer: RER

5. What happens when the cell gets damaged?

- ☐ Lysosomes may burst and the enzymes digest their own cell
- ☐ Lysosomes create a new cell
- ☐ Lysosomes repair the cell
- ☐ None of the above

Answer: Lysosomes may burst and the enzymes digest their own cell

Mitochondria

1. Mitochondria are known as the?

- ☐ 'Powerhouses' of the cell
- ☐ 'Suicide bags' of a cell
- ☐ 'Kitchens' of a cell
- ☐ 'Control centers' of a cell

Answer: 'Powerhouses' of the cell

2. The energy currency of the cell is?

- ☐ ATP
- ☐ ADP
- ☐ AMP
- ☐ None of the above

Answer: ATP

3. Which organelle has its own DNA and ribosomes?

- ☐ Mitochondria
- ☐ Lysosomes
- ☐ Golgi apparatus
- ☐ ER

Answer: Mitochondria

4. The outer membrane of mitochondria is?

- ☐ Porous
- ☐ Not porous
- ☐ Deeply folded
- ☐ None of the above

Answer: Porous

5. The inner membrane of mitochondria is?

- ☐ Deeply folded
- ☐ Not folded
- ☐ Porous
- ☐ None of the above

Answer: Deeply folded

Plastids

1. Plastids are present only in?

- ☐ Plant cells
- ☐ Animal cells
- ☐ Both plant and animal cells
- ☐ None of the above

Answer: Plant cells

2. Chromoplasts that contain chlorophyll are known as?

- ☐ Chloroplasts
- ☐ Leucoplasts
- ☐ Chromoplasts
- ☐ None of the above

Answer: Chloroplasts

3. The primary function of leucoplasts is?

- ☐ Storage
- ☐ Photosynthesis
- ☐ Respiration
- ☐ Protein synthesis

Answer: Storage

4. Like mitochondria, plastids also have their own?

- ☐ DNA and ribosomes
- ☐ Only DNA
- ☐ Only ribosomes
- ☐ None of the above

Answer: DNA and ribosomes

5. Chloroplasts are important for?

- ☐ Photosynthesis in plants
- ☐ Respiration in plants
- ☐ Transpiration in plants
- ☐ None of the above

Answer: Photosynthesis in plants

Vacuoles

1. Vacuoles are?

- ☐ Storage sacs for solid or liquid contents
- ☐ Powerhouses of the cell
- ☐ Kitchens of the cell
- ☐ Control centers of the cell

Answer: Storage sacs for solid or liquid contents

2. Which cells have very large vacuoles?

- ☐ Plant cells
- ☐ Animal cells
- ☐ Both plant and animal cells
- ☐ None of the above

Answer: Plant cells

3. In plant cells, vacuoles provide?

- ☐ Turgidity and rigidity to the cell
- ☐ Energy to the cell
- ☐ Food to the cell
- ☐ Color to the cell

Answer: Turgidity and rigidity to the cell

4. In Amoeba, the food vacuole contains?

- ☐ The food items that the Amoeba has consumed
- ☐ Water
- ☐ Air
- ☐ None of the above

Answer: The food items that the Amoeba has consumed

5. Specialised vacuoles in some unicellular organisms play important roles in?

- ☐ Expelling excess water and some wastes from the cell
- ☐ Absorbing water
- ☐ Storing food
- ☐ None of the above

Answer: Expelling excess water and some wastes from the cell

Cell Division

1. The process by which new cells are made is called?

- ☐ Cell division
- ☐ Cell multiplication
- ☐ Cell addition
- ☐ Cell subtraction

Answer: Cell division

2. The two main types of cell division are?

- ☐ Mitosis and meiosis
- ☐ Mitosis and osmosis
- ☐ Meiosis and osmosis
- ☐ None of the above

Answer: Mitosis and meiosis

3. In mitosis, a mother cell divides to form how many daughter cells?

- ☐ Two
- ☐ Four
- ☐ Six
- ☐ Eight

Answer: Two

4. In meiosis, a cell divides to produce how many new cells?

- ☐ Four
- ☐ Two
- ☐ Six
- ☐ Eight

Answer: Four

5. In meiosis, the new cells have how many chromosomes compared to the mother cell?

- ☐ Half
- ☐ Same
- ☐ Double
- ☐ Triple

Answer: Half