

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
- Protoplast
- 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