Name _____

Cell Features (p. 55 - 61)

I. The Cell Theory

1. **List the three parts of the cell theory.**

   1. All living things are made of one or more cells.
   2. Cells are the basic unit of structure + function in organism
   3. All cells are from existing cells.

p. 55

Twigs vs. Log

2. **Why are many smaller cells more efficienct than one larger cell?**

   Exchange substances more readily (↑ surface-area to volume ratio)

3. **Match the correct cell features with the correct definitions.** ***(Found in all cells)***

1. C.	Cell Membrane	A. System of microscopic fibers
2. E.	Cytoplasm	B. Provides instructions for protein synthesis
3. A.	Cytoskeleton	C. Regulates what enters and leaves the cell
4. B.	DNA	D. Cellular structures on which proteins are made
5. D.	Ribosomes	E. Interior of the cell

Cytosol
- semi-fluid substance

II. Prokaryotes

1. **Define the term prokaryote.**

   Prokaryote – Single-celled organism that lacks a nucleus and other internal components

Ancient: 3.5 billion years ago

Small 1-15 μm

2. **A subset of prokaryotes is commonly called** bacteria.

3. **Which of the following is not found in a prokaryotic cell?**

   a. cytoplasm
   b. circular loop of DNA (plasmids)
   c. cell membrane
   d. mitochondria

p. 57

Simple Structure

Eukaryotic
- (Wal-Mart)

Prokaryotic
- (Payless Shoe Store)

4. **Prokaryotic cells do not possess internal structures that divide cells into compartments.**

   Circle One : True **False**

Capsule
- surrounds some cell walls
  ↳ enables ability to cling to teeth, skin, food

5. **Define the term cell wall.**

   Cell Wall – structure of cells that provide structure + support (prokaryotes, fungi, plants)

6. **Define the term flagella.**

   Flagella – long, thread-like structures that protrude from the cell's surface + enables movement

Name _____

III. Eukaryotic Cells

p. 58

1. Define the term eukaryote.

Eukaryote – an organism whose cells have a nucleus

2. Match the terms with the correct definitions.

1. B. Nucleus — A. Structure that carries out specific activities in the cell
2. A. Organelle — B. Internal component that houses DNA

3. What are the boundaries of eukaryotic cytoplasm?

Everything inside of cell membrane + outside the nucleus

4. Define the term cilia.

Flagella used too! p. 58

Cilia – short, hair-like structures that protrude from the surface of eukaryotic cells (movement)

5. What is the purpose of the cytoskeleton?

"Steel beams in a building" → Dynamic too!

p. 59

Holds the cell together and keeps it from collapsing

6. Match the cytoskeleton fibers with the correct definitions.

1. B. Actin Fibers — A. Transport information from nucleus to cell parts
2. A. Microtubules — B. Contract & expand to determine cell shape
3. C. Intermediate Fibers — C. Anchors ribosomes and enzymes

IV. The Cell Membrane (Phet Simulation)

p. 60

"Security Guard"

1. The cell membrane is selectively permeable.

Circle One : True False

Polar – attracted to water – hydrophilic

Non-Polar – repelled by water – hydrophobic

2. Define the term phospholipid.

Phospholipid – lipid composed of (polar) phosphate head and two (non-polar) fatty acid tails

3. Explain the structure of a lipid bilayer.

"Railroad Tracks"

Phospholipids arranged in a double-layer (Tails = interior)

(Repels water, ions, sugars, some proteins)

4. Match the cell membrane proteins with the correct definitions.

p. 61

1. C. Enzyme — A. Helps move substances across the cell membrane
2. D. Marker Proteins — B. Recognizes & binds to specific substances
3. B. Receptor Proteins — C. Assists chemical reactions inside cells
4. A. Transport Proteins — D. Attached to carbohydrates to identify cell type

Proteins = made of amino acids (Some polar; some non-polar)