MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Which of the following statements about cells is true?
   A) All cells are attached to other cells.
   B) All cells have cell walls.
   C) All cells are motile.
   D) All cells have internal structures that move.

2) The idea that all living things are composed of cells and that all cells come from other cells defines
   A) organelle theory.
   B) the laws of inheritance.
   C) inheritance of acquired characteristics.
   D) cell theory.

3) As cell size increases, the
   A) volume increases faster than the surface area.
   B) volume and surface area decrease.
   C) surface area increases faster than the volume.
   D) surface area and volume increase at the same rate.

4) Plasma membranes are permeable to
   A) large hydrophilic molecules such as starch.
   B) nonpolar molecules such as CO₂.
   C) small ions such as Na⁺.
   D) hydrophilic molecules such as glucose.

5) In the plasma membrane, the phospholipid heads
   A) are hydrophobic and face inward, shielded from water
   B) are hydrophilic and face outward towards the aqueous solution on both sides of the membrane
   C) are hydrophilic and face inward, shielded from water
   D) are hydrophobic and face outward towards the aqueous solution on both sides of the membrane

6) Archaea are composed of ________ cells.
   A) bacterial
   B) eukaryotic
   C) animal
   D) prokaryotic

7) Which of the following structures is exclusively associated with prokaryotic cells?
   A) a membrane-bound nucleus
   B) ribosomes
   C) nucleoid
   D) chromosome

8) The nucleoid region of a prokaryotic cell
   A) contains the cell's DNA.
   B) is surrounded by a nucleoid membrane.
   C) separates the RNA from the cytoplasm.
   D) contains the cell's nucleoli.

9) ________ cells lack a membrane-enclosed nucleus.
   A) Plant
   B) Prokaryotic
   C) Fungal
   D) Eukaryotic
10) A bacterial cell’s DNA is found in its
   A) nucleoid region.  B) capsule.
   C) ribosomes.  D) nucleus.

11) The membranous compartmentalization of a cell
   A) allows different chemical conditions to be maintained in different parts of the cell.
   B) divides the cell into two equal-sized halves.
   C) requires the presence of a cell wall.
   D) is common to both prokaryotes and eukaryotes.

12) Which of the following statements about internal membranes in eukaryotic cells is false?
   A) In eukaryotic cells, internal membranes form membranous compartments called organelles.
   B) In eukaryotic cells, internal membranes provide an additional area for many metabolic processes to occur.
   C) In eukaryotic cells, internal membranes greatly increase a cell’s total membrane area.
   D) In eukaryotic cells, internal membranes standardize the internal environment of all cellular organelles.

13) Unlike animal cells, plant cells have ________ and ________. Unlike plant cells, animal cells have ________.
   A) chloroplasts . . . cell walls . . . a nucleus
   B) centrioles . . . chloroplasts . . . cell walls
   C) chloroplasts . . . cell walls . . . centrioles
   D) centrioles . . . cell walls . . . large central vacuoles

14) The nucleus of a cell
   A) is the primary location of protein synthesis.
   B) contains DNA.
   C) is contained within the nucleolus.
   D) is surrounded by a single layer of membrane.

15) The complex of proteins and DNA in a nondividing cell is called
   A) a ribosome.  B) chromatin.  C) a nucleolus.  D) a lysosome.

16) The function of the nucleolus is
   A) intracellular digestion.  B) to store chromatin.
   C) to manufacture polypeptides.  D) to manufacture ribosomal RNA.

17) Which location in the cell is unlikely to contain ribosomes or ribosomal subunits?
   A) cytoplasm  B) plasma membrane
   C) endoplasmic reticulum  D) nuclear envelope

18) The endomembrane system includes all of the following organelles except the
   A) endoplasmic reticulum.  B) peroxisome.
19) Secretory proteins are
   A) produced by the cell for internal use.
   B) produced by ribosomes on the smooth endoplasmic reticulum.
   C) released from the cell through the plasma membrane.
   D) chemically modified in the nucleus.

20) The Golgi apparatus
   A) stores, modifies, and packages proteins.
   B) is the site of carbohydrate breakdown.
   C) strings together amino acids to produce proteins.
   D) is composed of stacks of membranous vesicles that are continuous with one another.