**QUIZ (BIOL131; Cell Part 1)**

Name No.

**1. Cell size is limited by \_\_\_\_\_.**

A)the number of proteins within the plasma membrane B)surface to volume ratios

C)the size of the endomembrane system D)the surface area of mitochondria in the cytoplasm

**2. All of the following are parts of a prokaryotic cell EXCEPT**

A)ribosomes B)an endoplasmic reticulum C)a plasma membrane D)a cell well

**3. Which structure is common to plants *and* animal cells?**

A)chloroplast B)mitochondrion C)centriole D)central vacuole

**4. When biologists wish to study the internal ultrastructure of cells, they can achieve the finest resolution by using**A) a phase-contrast light microscope. B) a scanning electron microscope.
C) a transmission electronic microscope. D) a confocal fluorescence microscope.

5. **Which term most precisely describes the cellular process of breaking down large molecules into smaller ones?**A)catabolism (catabolic pathways) B)anabolism (anabolic pathways)

C)metabolism D)dehydration

**6. A cell has the following molecules and structures: enzymes, DNA, ribosomes, plasma membrane, and mitochondria. It could be a cell from**A) a bacterium. B) an animal, but not a plant. C) nearly any eukaryotic organism.
D) any multicellular organism, like a plant or an animal. E) any kind of organism.

**7. The smallest cell structure that would most likely be visible with a standard (not super-resolution) research-grade light microscope is**A) a mitochondrion. B) a microtubule. C) a ribosome D) a microfilament.

**8. The advantage of light microscopy over electron microscopy is that**A) light microscopy provides for higher magnification than electron microscopy.
B) light microscopy provides for higher resolving power than electron microscopy.
C) light microscopy allows one to view dynamic processes in living cells.
D) light microscopy provides higher contrast than electron microscopy.
E) specimen preparation for light microcopy does not produce artifacts.

**9. Which of the following produces and modifies polysaccharides that will be secreted?**A) lysosome B) vacuole C) mitochondrion D) Golgi apparatus E) peroxisome

**10. Which of the following contains hydrolytic enzymes?**A) lysosome B) vacuole C) mitochondrion D) Golgi apparatus E) peroxisome

**11. A primary objective of cell fractionation is to**A) view the structure of cell membranes.

B) sort cells based on their size and weight.
C) determine the size of various organelles.

D) separate the major organelles so that their particular functions can be determined.
E) separate lipid-soluble from water-soluble molecules.

**12. In the fractionation of homogenized cells using centrifugation, the primary factor that determines whether a specific cellular component ends up in the supernatant or the pellet is**A) the relative solubility of the component.
B) the size and weight of the component.
C) the percentage of carbohydrates in the component.
D) the presence or absence of nucleic acids in the component.
E) the presence or absence of lipids in the component.

**13. Which plant cell organelle contains its own DNA and ribosomes?**A) glyoxysome B) vacuole C) mitochondrion D) Golgi apparatus E) peroxisome

**14. Thylakoids, DNA, and ribosomes are all components found in**A) vacuoles. B) chloroplasts. C) mitochondria. D) lysosomes. E) nuclei.

**15. The chemical reactions involved in respiration are virtually identical between prokaryotic and eukaryotic cells. In eukaryotic cells, ATP is synthesized primarily on the inner membrane of the mitochondria. In light of the endosymbiont theory for the evolutionary origin of mitochondria, where is most ATP synthesis likely to occur in prokaryotic cells?**A) in the cytoplasm B) on the inner mitochondrial membrane
C) on the endoplasmic reticulum D) on the plasma membrane

**16. The evolution of eukaryotic cells most likely involved**A) endosymbiosis of an aerobic bacterium in a larger host cell–the endosymbiont evolved into mitochondria.
B) anaerobic archaea taking up residence inside a larger bacterial host cell to escape toxic oxygen–the anaerobic bacterium evolved into chloroplasts.
C) an endosymbiotic fungal cell evolved into the nucleus.
D) acquisition of an endomembrane system, and subsequent evolution of mitochondria from a portion of the Golgi.

**17. In a plant cell, DNA may be found \_\_\_\_\_\_\_.**

A)in the nucleus, mitochondria, and chloroplasts

B)only in the nucleus

C)only in the nucleus and chloroplasts

D)in the nucleus, mitochondria, chloroplasts, and peroxisomes

**18. Which organelle is the primary site of ATP synthesis in eukaryotic cells?**

A)peroxisome B)mitochondrion C)Golgi apparatus D)lysosome