**QUIZ (BIOL131; Cell Part 2)**

***Name No.***

**1. Which animal cell organelle contains enzymes that transfer hydrogen from various substrates to oxygen?**

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

**2. The volume enclosed by the plasma membrane of plant cells is often much larger than the corresponding volume in animal cells. The most reasonable explanation for this observation is that**A) plant cells are capable of having a much higher surface-to-volume ratio than animal cells.
B) plant cells have a much more highly convoluted (folded) plasma membrane than animal cells.
C) plant cells contain a large vacuole that reduces the volume of the cytoplasm.
D) animal cells are more spherical, whereas plant cells are elongated.
E) plant cells can have lower surface-to-volume ratios than animal cells because plant cells synthesize their own nutrients.

**3. What is the function of the nuclear pore complex found in eukaryotes?**A)It selectively transports molecules out of the nucleus, but prevents all inbound molecules from entering the nucleus
B)It regulates the movement of proteins and RNAs into and out of the nucleus

C)It assembles ribosomes from raw materials that are synthesized in the nucleus

D)It synthesizes the proteins required to copy DNA and make mRNA

B)It regulates the movement of proteins and RNAs into and out of the nucleus

**4. Large numbers of ribosomes are present in cells that specialize in producing which of the following molecules?**

A)glycogen B)nucleic acids C)proteins D)lipids

**5. Which organelle often takes up much of the volume of a plant cell?**

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

**6. Which structure is NOT part of the endomembrane system?**

A)plasma membrane B)nuclear envelope C)golgi apparatus D)cholorplast

**7. A cell with an extensive area of smooth endoplasmic reticulum is specialized to \_\_\_\_\_\_\_.**

A)synthesize large quantities of lipids B)import and export protein molecules

C)play a role in storage D)actively exports protein molecules

**8. Tay-Sachs disease is a human genetic abnormality that results in cells accumulating and become clogged with very large, complex, undigested lipids. Which cellular organelle must be involved in this condition?**

A)mitochondrion B)the lysosome C)Golgi apparatus D)the endoplasmic reticulum

**9. What is the most likely pathway taken by a newly synthesized protein that will be secreted by a cell?**A)ER -> lysosomes -> vesicles that fuse with a plasma membrane

B)Golgi -> ER ->lysosome

C)ER -> Golgi -> nucleus

D)ER -> Golgi -> vesicles that fuse with plasma membranes

**10 .Which of the following contain the 9 + 2 arrangement of microtubules, consisting of 9 doublets of microtubules surrounding a pair of single microtubles?**A)basal bodies and primary (nonmotile) cilia B)motile cilia and primary (nonmotile) cilia

C)centrioles and basal bodies D)flagella and motile cilia

**11. Ions can travel directly from the cytoplasm of one animal cell to the cytoplasm of an adjacent cell through \_\_\_\_\_.**

A)gap junctions B)desmosomes C)plasmodesmata D)tight junctions

**12. Where would you expect to find tight junctions?**A)between plant cells in a woody plant B)in the epithelium of an animal's stomach

C)between the smooth endoplasmic reticulum and the rough endoplasmic reticulum

D)in the plasma membrane of prokaryotes

**13. Which of the following membrane activities requires energy from ATP?**A)movement of glucose molecules into a bacterial cell from a medium containing a higher concentration of glucose than inside the cell

B)movement of carbon dioxide of a paramecium

C)facilitated diffusion of chloride ions across the membrane through a chlorine channel

D)movement of Na+ ions from a lower concentration in a mammalian cell to a higher concentration in the extracellular fluid

**14. White blood cells engulf bacteria using \_\_\_\_\_\_\_.**

A)receptor mediated endocytosis B)pinocytosis C)osmosis D)phagocytosis

**15. Which organelle or structure is absent in plant cells?**A) Golgi vesicles B) microtubules C) centrosomes D) peroxisomes

**16. Which type of organelle or structure is primarily involved in the synthesis of oils, phospholipids, and steroids?**A) ribosome B) lysosome C) smooth endoplasmic reticulum D) contractile vacuole

**17. The liver is involved in detoxification of many poisons and drugs. Which of the following structures is primarily involved in this process and therefore abundant in liver cells?**A) rough ER B) smooth ER C) Golgi apparatus D) nuclear envelope E) transport vesicles

**18. Motor proteins provide for molecular motion in cells by interacting with what types of cellular structures?**A) sites of energy production in cellular respiration B) membrane proteins

C) ribosomes D) cytoskeletal structures E) cellulose fibers in the cell wall

**19. Movement of vesicles within the cell depends on what cellular structures?**A) microtubules and motor proteins B) actin filaments and microtubules

C) actin filaments and ribosomes D) centrioles and motor proteins

20. **Which of the following contain the 9 + 2 arrangement of microtubules, consisting of nine doublets of microtubules surrounding a pair of single microtubules?**A) both motile cilia and primary (nonmotile) cilia B) centrioles only
C) both flagella and motile cilia D) both centrioles and basal bodies

**QUIZ (25.02.2019; BIOL131; Cell Part 3)**

***Name No.***

**1. Vinblastine, a drug that inhibits microtubule polymerization, is used to treat some forms of cancer. Cancer cells given vinblastine would be unable to**A) form cleavage furrows during cell division. B) migrate by amoeboid movement.
C) separate chromosomes during cell division. D) extend pseudopods.


**2. The differences among the three categories of cytoskeletal elements outlined in the table above would suggest that each of the following has specialized roles. Which of the following is a correct match? (All three elements are involved in the maintenance of cell shape.)**A) microfilaments and the nuclear lamina B) microtubules and cleavage furrow formation
C) microfilaments and ciliary motion D) microtubules and chromosome movement

**3. Centrioles, cilia, flagella, and basal bodies have remarkably similar structural elements and arrangements. Which of the following hypotheses is most plausible in light of such structural similarities?**A) Cilia and flagella arise from the centrioles.
B) Loss of basal bodies should lead to loss of all cilia, flagella, and centrioles.
C) Motor proteins such as dynein must have evolved before any of these four kinds of structure.
D) Cilia and flagella coevolved in the same ancestral eukaryotic organism.
E) Natural selection for cell motility repeatedly selected for microtubular arrays in circular patterns in the evolution of each of these structures.

**4. If an individual has abnormal microtubules, due to a hereditary condition, in which organs or tissues would you expect dysfunction?**A) limbs, hearts, areas with a good deal of contraction
B) microvilli, alveoli, and glomeruli: cellular projections that increase surface area
C) all ducts, such as those from salivary or sebaceous glands, that transport fluids
D) sperm, larynx, and trachea: cells and tissues that contain flagella or cilia
E) phagocytic cells and white blood cells that exhibit amoeboid movement

**5. Cells require which of the following to form cilia or flagella?**A) centrosomes B) actin C) intermediate filaments D) secretory vesicles

**6. All of the following serve an important role in determining or maintaining the structure of plant cells. Which of the following are distinct from the others in their composition?**A) microtubules B) microfilaments C) plant cell walls D) intermediate filaments

**7. The cell walls of bacteria, fungi, and plant cells and the extracellular matrix of animal cells are all external to the plasma membrane. Which of the following is a characteristic common to all of these extracellular structures?**A) They must block water and small molecules in order to regulate the exchange of matter and energy with their environment.
B) They must permit information transfer between the cell's cytoplasm and the nucleus.
C) They must provide a rigid structure that maintains an appropriate ratio of cell surface area to volume.
D) They are constructed of polymers that are synthesized in the cytoplasm and then transported out of the cell.
E) They are composed of a mixture of lipids and carbohydrates.

**8. When a potassium ion (K+) moves from the soil into the vacuole of a cell on the surface of a root, it must pass through several cellular structures. Which of the following correctly describes the order in which these structures will be encountered by the ion?**A) plasma membrane → primary cell wall → cytoplasm → vacuole
B) secondary cell wall → plasma membrane → primary cell wall → cytoplasm → vacuole
C) primary cell wall → plasma membrane → cytoplasm → vacuole
D) primary cell wall → plasma membrane → lysosome → cytoplasm → vacuole
E) primary cell wall → plasma membrane → cytoplasm → secondary cell wall → vacuole

**9. Plasmodesmata in plant cells are most similar in function to which of the following structures in animal cells?**A) peroxisomes B) desmosomes C) gap junctions D) extracellular matrix

**10 .Ions can travel directly from the cytoplasm of one animal cell to the cytoplasm of an adjacent cell through**A) plasmodesmata. B) tight junctions. C) desmosomes. D) gap junctions.

**11. What types of proteins are not synthesized in the rough ER?**A) endoplasmic reticulum proteins B) extracellular matrix proteins
C) secreted proteins D) mitochondrial proteins

**12. A biologist ground up some plant leaf cells and then centrifuged the mixture to fractionate the organelles. Organelles in one of the heavier fractions could produce ATP in the light, whereas organelles in the lighter fraction could produce ATP in the dark. The heavier and lighter fractions are most likely to contain, respectively,**A) mitochondria and chloroplasts. B) chloroplasts and peroxisomes.
C) peroxisomes and chloroplasts. D) chloroplasts and mitochondria.

**13. Which structure-function pair is mismatched?**A) nucleolus; production of ribosomal subunits B) lysosome; intracellular digestion
C) ribosome; protein synthesis D) Golgi; protein trafficking
E) microtubule; muscle contraction

**15. Cyanide binds with at least one molecule involved in producing ATP. If a cell is exposed to cyanide, most of the cyanide will be found within the**A) mitochondria. B) peroxisomes. C) lysosomes. D) endoplasmic reticulum.