Cytology Study Guide

Name_____

1. Give a brief description of the following cellular organelles below

Nucleus

Nucleolus

Chromatin

Nuclear Pores

Rough ER

Smooth ER

Centrioles

Cell Membrane

Golgi Apparatus

Mitochondria

Lysosomes

Vacuole

Microvilli

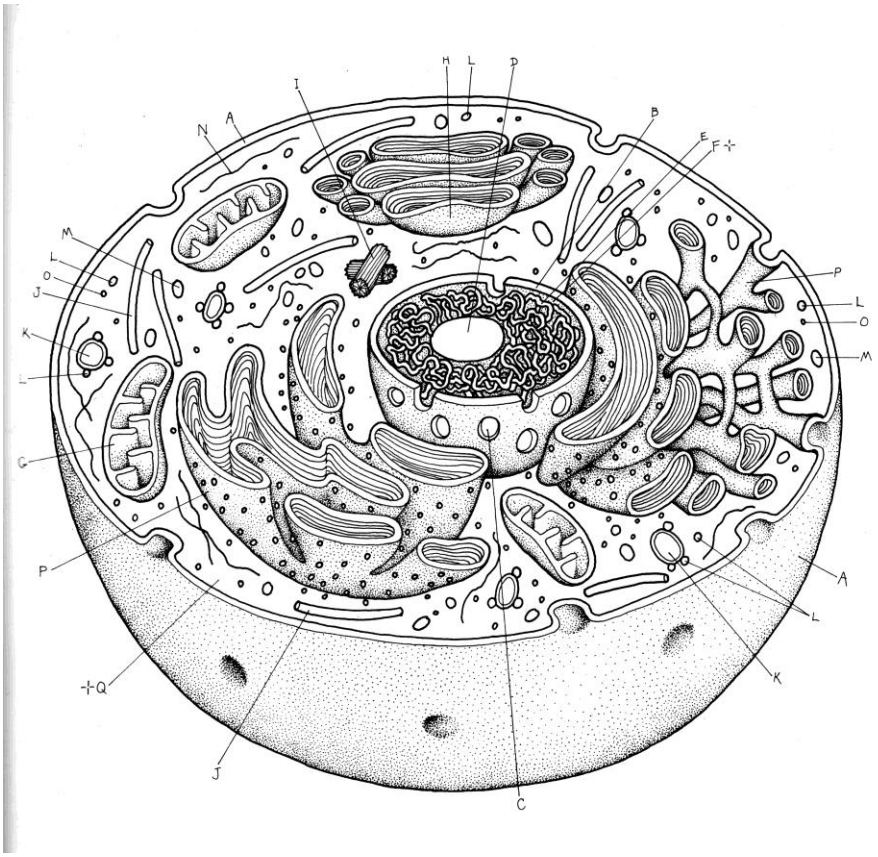
Cytoplasm

Vesicles

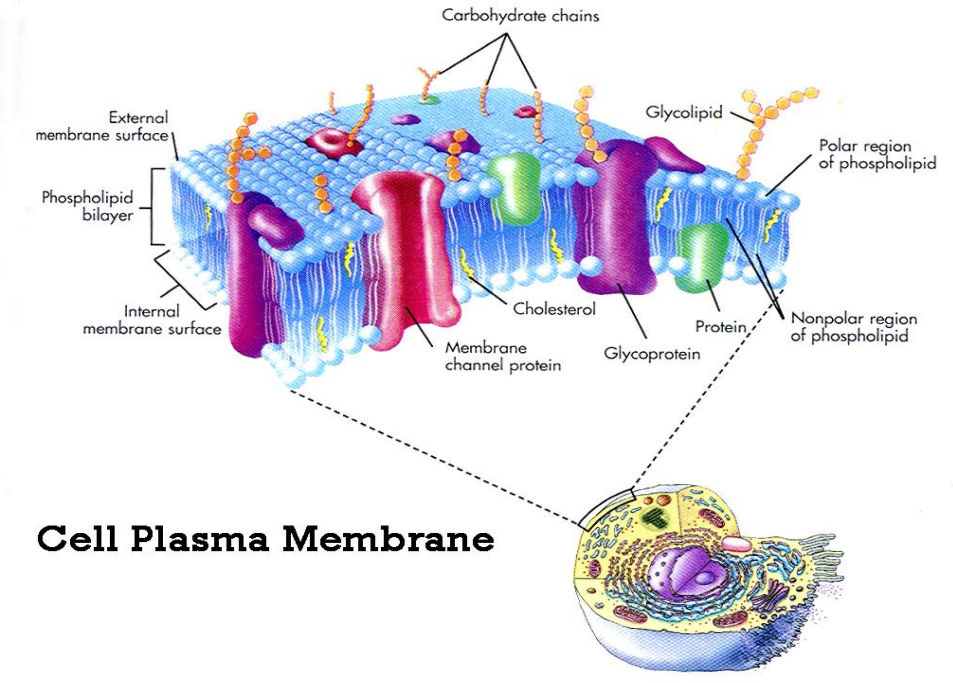
Microtubules

Ribosomes

2. Label all cellular organelles that are listed in #1. (1 of them on the list is not on the cell diagram)



3. Illustrated to the right is a image of a cell membrane. Discuss the parts of the cell membrane and their functions. Also be sure to include what is hydrophilic and hydrophobic what that means for the cell membrane.



3. Describe in detail the processes of endocytosis and exocytosis. Does it require energy? What kinds of substances are transferred across the membrane? What organelles are associated with exocytosis? Draw images to represent both endocytosis and exocytosis.

4. In passive transport, substances cross through the cell membrane from _____ to _____ concentrations. Therefore, energy is/ is not required. Next, list the three processes of passive transport and give the definition of each one.

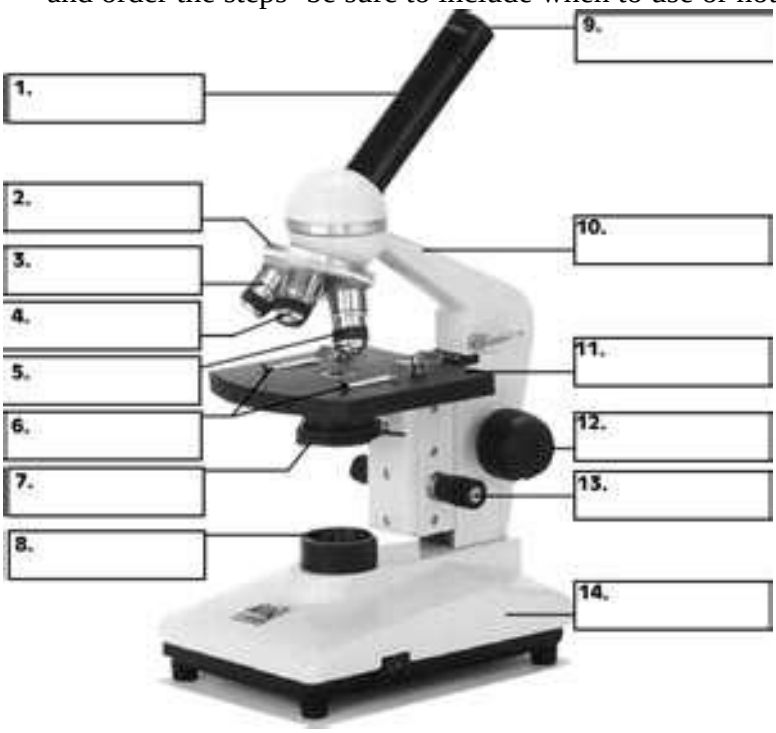
5. Fill in the table below concerning protein synthesis.

	Transcription	Translation
What does it make?:		
Location?:		
Overall Function:		

6. What is a mutation? How does that affect protein synthesis?

7. Stem cell research is current and ongoing. What is your opinion on the use and research of stem cells? Also, what are the differences among pluripotent and mulitpotent stem cells as well as embryonic and adult stem cells? (Where can they be found? What are the strengths and weaknesses of each?)

8. Name the parts of a microscope. To the side of the image, discuss how to focus on a specimen. Name and order the steps- be sure to include when to use or not use certain parts and why.



9. Discuss the following osmotic states: hypertonic, hypotonic, and isotonic. Then draw a picture of each one and use arrows to show how water would flow (or not flow) across the membrane depending on the cells solute concentration. (I have set up for you where to draw your three pictures and labeled the solute concentrations for each one.

<u>Discussion of osmotic states (3 types):</u>

A .30% salt inside cell/70% outside

B. 70% salt inside cell/30% outside

C. 50% salt inside cell/50% salt outside cell