

**2019-2020 - Introduction to Biology**

**Ch. 18/19/20**

1. Fill in the table below. Write Y for present or for the animals, plants and/or bacteria have the following organelles.

Organelle	Animals	Plants	Bacteria
Chloroplast		Y	
Cell wall		Y	
Large nucleus	Y		
Centrioles	Y		
ER	Y	Y	
Flagella	Y		Y
Cell membrane	Y	Y	Y
Cell wall	Y	Y	Y

2. A cell in your body has to make insulin hormone and export it into the blood. List the steps the cell will go through to make and release the protein starting with the hormone gene.

Gene → mRNA → Ribosome via Rough ER → Transport Vesicles → Golgi Apparatus → Secondary Vesicles → plasma membrane

3. What 3 organelles do plants have that animal cells do not?  
Cell wall, Chloroplast, and Central Vacuole

4. Fill out the function for each of the following organelles.

- A. Lysosomes, **Intracellular Digestion**
- B. Mitochondria, Cellular Respiration:  $\text{Glucose} + \text{O}_2 \rightarrow \text{ATP} + \text{CO}_2 + \text{H}_2\text{O}$
- C. Rough ER, Folded proteins as they enter from Ribosomes
- D. Smooth ER, Lipid and steroid hormone synthesis, detoxification
- E. Chloroplasts, Photosynthesis:  $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{sugars} + \text{Glucose} + \text{O}_2$
- F. Plasmodesma, Protein synthesis from mRNA
- G. Nuclear Envelope Membrane separates that houses DNA and nucleolus. Channels pores for passage materials into the cytoplasm.
- H. Centrioles, Codes for proteins. 2 poles → 2 poles
- I. messenger RNA, Carries protein code from the gene to the ribosome in the cytoplasm
- J. Golgi Apparatus, sorting and distribution of vesicle bound proteins

5. Where does cellular respiration occur? **Mitochondria**

Write out the reaction for Cellular Respiration:



6. Where does photosynthesis occur in the cell? **Chloroplast**

Write out the reaction for Photosynthesis:

