Define (1-2 marks/ each)

Anchoring junctions

Pinocytosis

Short answers (about 4-6 marks/ each)

Compare the translation of integral proteins to the translation of cytosolic protein

Explain relationship between introns, exons and domains

Given a table you have to name 3 classes of chemical messengers and give an example of each

Compare and contrast
a) Apoptosis vs. necrosis
b) Ligand gated ion channel vs. G- coupled receptor

Name two motor proteins and their roles

Identity which type of mutation given a sequence of nucleotides (5' → 3')

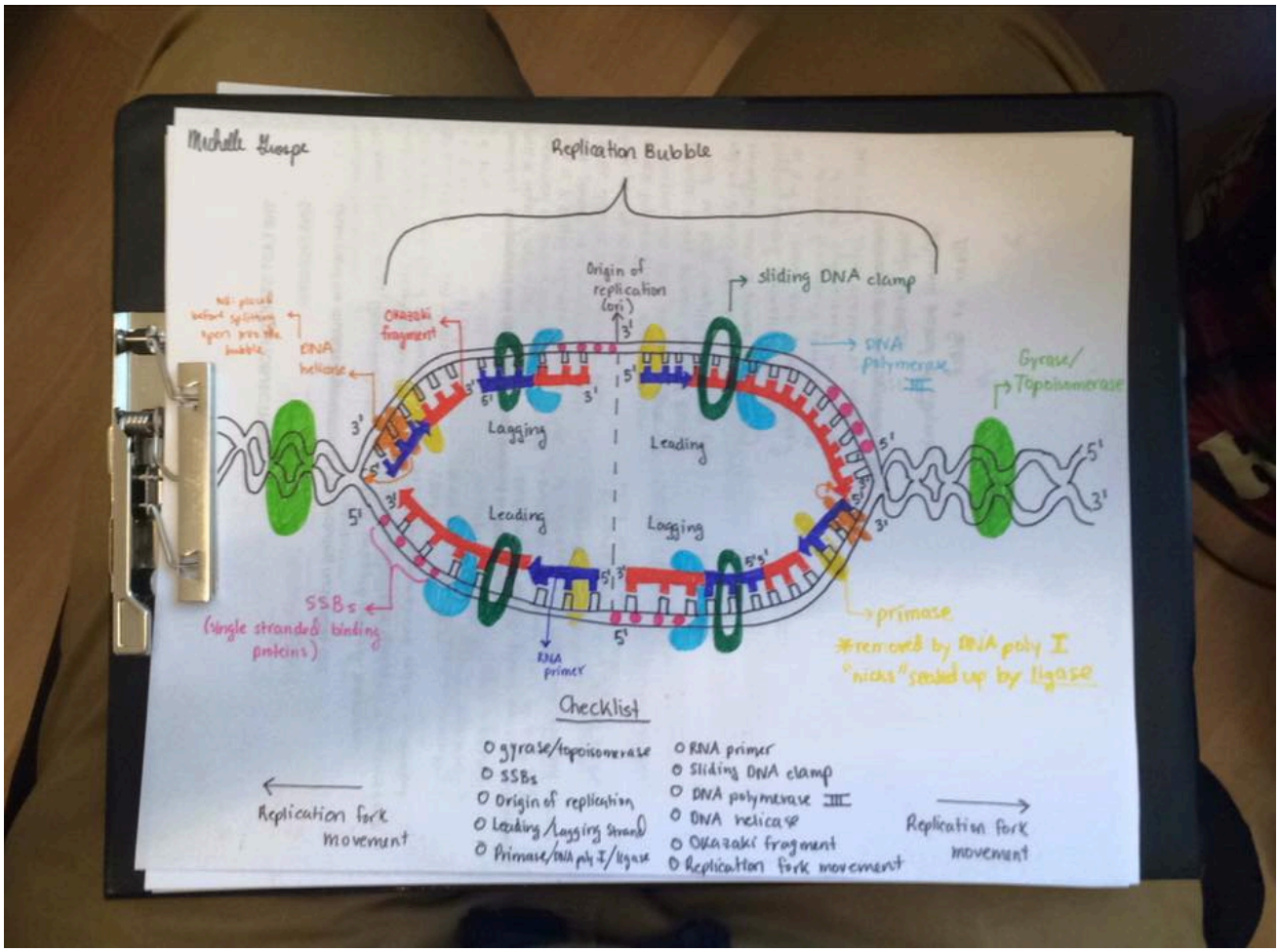
Why is it advantageous to have Norepinephrine (inhibitory and exhibitory) trigger many different responses?

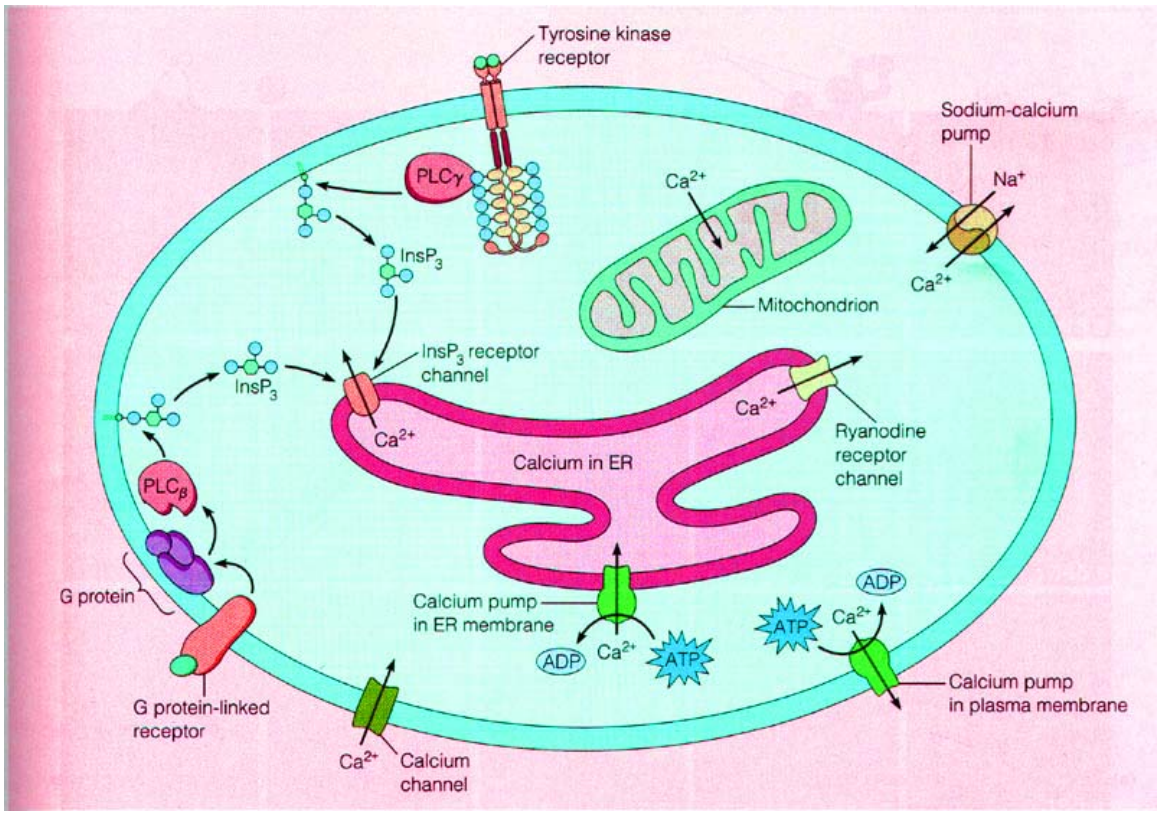
True/ False (explain if false):

1) Mitochondria and viruses are the same size
2) Photosynthesis converts light photon into chemical energy

Long answers (8-10 marks/ each)

Draw a replication bubble (label everything)
Answer:

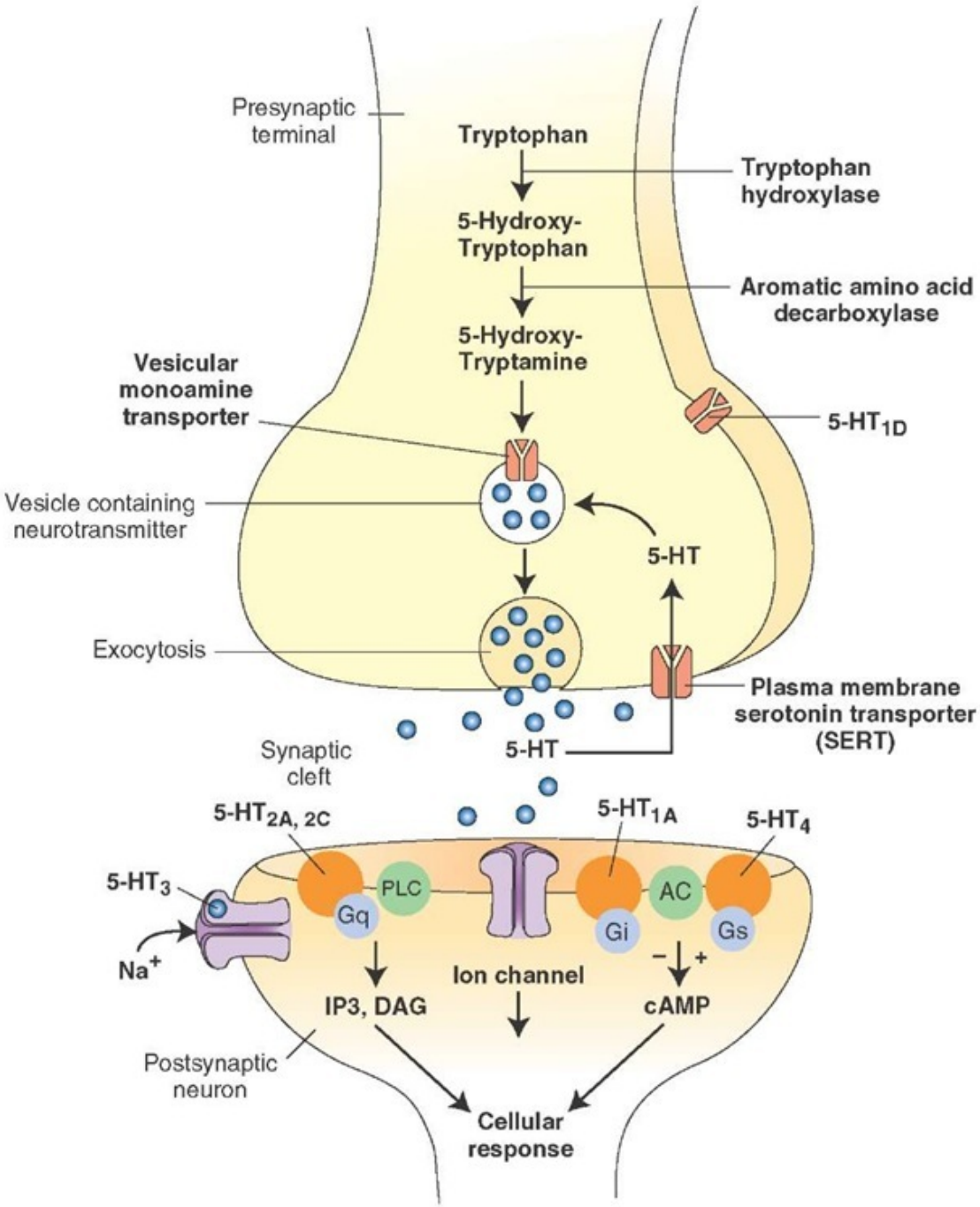




You have to explain the steps of this (THIS **EXACT** DIAGRAM). Explain how calcium is regulated in the cell through the mitochondria.

Answer: An Overview of Calcium Regulation in Cells. Cytosolic calcium concentration is lowered by the actions of the ER calcium pump, the plasma membrane calcium pump, sodium-calcium exchangers, and the mitochondria. Calcium concentration increases in the cytosol because of the opening of calcium channels in the plasma membrane and the release of calcium through the lnsP3 or ryanodine receptor channels in the ER membrane.
IP3-Ca2+ pathway and DG-PKC pathway
Signals→GPLR →GP →PLC→IP3 and DAG (twin signals).
IP3→IP3 receptor(Ca2+ channel, located at the surface of sER)→ Elevation of cytosolic Ca2+;
DAG→activates PKC→to phosphoralate Ser and Thr on target proteins.
Calcium binds to calcium-binding proteins(CaM) which affects other proteins.

Read more (she used a lot of the exact same diagrams found in this link on her past midterms and slides)
http://cc.scu.edu.cn/G2S/Template/View.aspx?courseType=1&courseId=17&topMenuId=113301&menuType=1&action=view&type=&name=&linkpageID=113472



Given a diagram (Serotonin in the synaptic cleft) similar to this and you have to explain how anti- depressants are blocked.

Last question: Explain how you can prevent cancer by **preventing** cell growth (Using the cell cycle check points and G1/ S cyclin) and **trigger** cell death