1. What is the Central Dogma of Biology?

2. Are homologous proteins derived from a gene in a common ancestor? What is the difference between an Orthologue and Paralogue? Please give examples of both types and describe how they arose during evolution.

3. How does an anaesthetic act as a weak base within the stomach? What is its mechanism of action after entering the bloodstream?

4. What are the physical effects of Sickle Cell Anaemia? Is the amino acid mutation an example of a conservative or non-conservative substitution? Why are heterozygotes advantageous?

5. Draw the Lipid Bilayer of a cell membrane according to the Fluid Mosaic Model.

6. Why is lateral movement within the cell membrane more common than 'flip-flop' movement?

7. Describe how the following affect membrane fluidity:
   - Transition T° C:
   - Fatty Acid Chain length:
   - Cholesterol:
   - Fatty Acid Saturation:

8. Define Intrinsic and Extrinsic Proteins:

9. What are the 6 types of transport mentioned in your lectures? Draw a concept map to help show the similarities and differences between each type. Please give examples of each type and describe their different energy requirements.

10. Why is it necessary for water to have easy access across membranes? What is meant by biological membranes being semi-permeable?

11. Why does facilitated transport have a similar graph to M-M kinetics? Would passive diffusion through channel pores show this type of kinetics? What is the name given to this type of kinetic?

12. How is glucose co-transported with sodium across epithelial cells from the intestine and into the bloodstream using Na+/K+ ATPase? Devise a skit to show how the molecules interact. (Tip: Give your fellow classmates the labels of: Na+, glucose, K+, epithelial cell membrane, ATPase, transmembrane protein carriers, narrator, etc… and present to the rest of the class! 😊)