1. From your notes, describe the process of cellular respiration including (A) what it is, (B) where it occurs and (C) how it relates to systemic respiration.
   My answer: Cellular respiration is the process of taking sugars, produced by plant cells or consumption of other cells, that are present in the cytoplasm to be broken down by glycolysis. mitochondria finish the processing of sugar to release energy that the cell can use. This is similar to systemic respiration because that is when animals breathe in oxygen where it is dropped off in the lungs to the blood cells and taking in carbon dioxide to release.

2. You are an oxygen molecule that was just inhaled through someone's nose. Describe (A) the respiratory structures you pass through to get to the alveoli; and then (B) the path you take in the blood vessels and heart to reach a cell in an organ of the body (like the liver or kidneys).
   My answer: Air goes through the nose/mouth into the pharynx and then the larynx. The larynx is connected to the trachea, the windpipe. The trachea has ciliated cells that moves mucus, which traps potential pathogens. Oxygen finally makes its way into the two bronchi, leading to smaller bronchi, and the alveoli. Alveoli are surrounded by capillaries that oxygenate the blood. The oxygen goes into the blood vessels, carried by blood cells, into the heart. From there it the blood cell takes the oxygen to whatever organ needs it like cells in the liver.

3. Pneumonia, chronic bronchitis, and emphysema are all lung diseases. Compare these three diseases, including (A) where each disease occurs in the lungs and (B) what is occurring to that part of the lungs for each disease.
   My answer: Pneumonia: inflammation and fluid accumulation in alveoli and bronchioles. | Chronic bronchitis: excessive mucus that blocks airflow in the bronchioles | emphysema: punctured alveoli which can collapse

4. You have a friend that needs motivation to do regular aerobic exercise. Explain three potential positive impacts of aerobic exercise on respiratory organs.
   My answer: Aerobic exercise increases muscle strength of the diaphragm and intercostal muscles for stronger contractions, fresh air space of the lungs so there are more alveoli being used when breathing, and there is more oxygen for all cells in the body, not just lungs.