**Cell Unit Test Free Response Questions:**

1. **Regulation and homeostasis are critical to living things.**
   1. **Explain what a feedback mechanism is and how it helps an organism to maintain homeostasis.**
   2. **Explain the difference between positive and negative feedback and give examples.**
2. **Living cells are highly organized and regulated.**
   1. **Describe the structure of the plasma membrane.**
   2. **Explain how the plasma membrane contributes to the regulation of the cell.**

**3**. **Describe the structure and function of the mammalian kidney. Include a**

**discussion of the regulation of water balance by kidney and hormonal interaction.**

1. **Discuss the mechanism by which a muscle cell contracts or a nerve cell**

**transmits an impulse. Include in your discussion the relationship between**

**cell structure and function.**

1. **A major distinction between prokaryotic and eukaryotic organisms is the presence of membrane bound organelles in eukaryotic cells.**
2. **Describe the structure and function of two membrane bound organelles, other than the nucleus in a eukaryotic cell.**
3. **Prokaryotes and Eukaryotes have some non-membrane bound organelles in common. DESCRIBE the function of two of the following and Discuss how they differ from each other.**

**DNA**

**Cell Wall**

**Ribosomes**

1. **Explain the endosymbiotic theory of the orgin of eukaryotic cells and discuss and example of evidence supporting this theory.**
2. **In biological systems, structure and function are related.**
   1. **For the following three components of an organ system, describe the structure of the component and how the structure is responsible for the function of the component.**

**Nephron**

**Neuron**

**Villi**

* 1. **For each of the components described, explain how the structure of the component contributes to the organ system to which it belongs.**