**Mammalian Nervous Communication (Chapter 15)**

1. Diagram and label a mammalian neuron cell. Include brief descriptions of the following features: axon, dendrite, Schwann cells, myelin sheath, nodes of Ranvier.
2. Compare and contrast motor and sensory neurons in both form and function.
3. Outline the stages of a reflex arc in neural transmission.
4. What is resting potential and why is it important?
5. Outline the process by which a sodium-ion pump functions.
6. What is action potential and what does it do?
7. How do action potentials carry information?
8. Explain the factors that influence nervous transmission rate (speed of conduction).
9. What are receptor cells and what do they do? Describe the different kinds of receptor cells.
10. What is a synapse and how do they function? Explain the mechanism for synaptic transmission.
11. What roles do synapses serve in the body?

**Mammalian Hormonal Communication**

1. Describe what hormones are and what purposes they serve in animals (especially mammals).
2. Diagram and describe the pancreas including the following parts: bile duct, pancreatic duct, islet of Langerhans, pancreatic cells, pancreatic veins.
3. How does the pancreas regulate blood glucose levels and why is this important?
4. Examine Fig 18.21 on page 315. How is insulin in the blood controlled and regulated?
5. Describe the symptoms and causes of diabetes mellitus.

**Plant Hormonal Control**

1. How are plant growth regulators (hormones) different from animal hormones?
2. Complete the following chart on your own paper:

|  |  |  |  |
| --- | --- | --- | --- |
| **Hormone:** | **Description of Role:** | **Significance of role:** | **Location on plant where activated:** |
| **Auxins** |  |  |  |
| **Gibberellins** | Stem elongation: |  |  |
| **Gibberellins** | Seed germination: |  |  |
| **Abscisic Acid (ABA)** |  |  |  |
| **Cytokinins** |  |  |  |

19. Describe the process by which leaves are abscised from plants.