Essay Questions

Beyond the Limits (p. 242-244)

1. Define stressor.
2. Can the body recover normal balance more easily from a mild stressor or a severe stressor. Explain.
3. Use Figure E6.1 to answer the following question.
    A. List two ways the body adjusts to a loss of 20% blood volume in order to maintain homeostasis and recover.
    B. Why does a loss of 40% blood volume result in death?
4. Explain the negative impacts on the body that a less severe stressor like diabetes can produce because it lasts for a long time (see Figure e6.2).
5. List three other examples of stressors.
6. What happens to any organism if it cannot maintain homeostasis?

Coping with Disruptions: The Role of Medicine in Homeostasis (p. 244-246)

1. Explain one way that surgeons can help maintain balance in the cardiovascular system.
2. How does a ventilator help restore internal balance?
3. How does a dialysis machine restore internal balance?
4. List 4 ways that health care professionals can gather information about a person's illness or injury.
5. Explain how technicians use the different types of blood cells to tell if you have a blood disorder.
6. List three disorders that can be treated with drug technologies.
7. Use Figure E6.6 to answer the following question: How can you tell that the bacteria on the petri dish is resistant to the antibiotic bacitracin?
8. List one ethical question that has come about because of advances in medical research.

Essay Questions

Avoiding Disruptions: The Immune System (p. 246-250)

1. Define Nonspecific Defense. List 3 external and 1 internal examples.
2. Define Specific Defense.
3. Explain the role of each of the following in keeping you healthy and tell whether they are part of the Cell-Mediated Response, the Antibody-Mediated Response or both:
    a. Helper T cell
    b. Killer T cell
    c. Plasma B cell
    d. Memory B cell
4. Allergens are substances that are not harmful but trigger an immune response. Explain why this happens and the symptoms a person with an allergy has.

Self and Nonself (250-251)

1. Explain what is meant by the terms "self" and "nonself" when discussing immunity.
2. What type of antigens does a person with blood type A have on their blood cell? Why can't they be given a transfusion of blood type B?
3. If you are given a blood transfusion of a blood type that the body recognizes as "nonself" what will happen?
4. Why can blood type O can be transfused into anyone?
5. What is the cause of an autoimmune disease? Give one example of an autoimmune disease.

Immune System Memory (p. 251-252)

1. What is the benefit of the immune system having a "memory"?
2. Which type of immune cells is responsible for this "memory"? (think back to the essay "Avoiding Disruptions: The Immune System p. 246-250)
3. How may this "memory" prevent you from getting a certain disease more than once?
4. Explain how vaccines use this idea of immune system "memory"?
5. Look at the graph (E6.12) and explain what happened to the number of rubella cases in the United States between 1966 and 1991 and why.
6. Why can't scientists devise vaccines for all diseases?