

Answer a total of 10 questions (each 10%).

1. What endocrine changes would you expect to see after section of the pituitary stalk, and why?
2. Describe several mechanisms by which pain could theoretically be controlled medically or surgically.
3. What would vision be like after a drug has destroyed all the cones in the retina?
4. A person is receiving very large doses of a cortisol-like drug to treat her arthritis. What happens to her secretion of cortisol?
5. As a result of an automobile accident, 50 percent of the muscle fibers in the biceps muscle of a patient were destroyed. Ten months later, the biceps muscle was able to generate 80 percent of its original force. Describe the changes that took place in the damaged muscle that enabled it to recover.
6. In the laboratory, if an isolated skeletal muscle is placed in a solution that contains no calcium ions, will the muscle contract when it is stimulated (1) directly by depolarizing its membrane, or (2) by stimulating the nerve to the muscle? What would happen if it were a smooth muscle?
7. A patient is taking a drug that blocks beta-adrenergic receptors. What changes in cardiac function will the drug cause?
8. A blood vessel removed from an experimental animal dilates when exposed to acetylcholine. After the endothelium is scraped from the lumen of the vessel, it no longer dilates in response to this mediator. Explain.
9. Why must a person floating on the surface of the water and breathing through a snorkel increase his tidal volume and/or breathing frequency if alveolar ventilation is to remain normal?
10. A person is taking a drug that inhibits the tubular secretion of hydrogen ions. What effect does this drug have on the body's balance of sodium, water, and hydrogen ion?
11. One of the older but no longer used procedures in the treatment of ulcers is vagotomy, surgical cutting of the vagus (parasympathetic) nerves to the stomach. By what mechanism might this procedure help ulcers to heal and decrease the incidence of new ulcers?
12. If a woman 7 months pregnant is found to have a marked decrease in plasma estriol but a normal plasma progesterone for that time of pregnancy, what would you conclude?

- - End of questions - -