

Candidate Index Number: \_\_\_\_\_

## **Biology, Case 1**

Topic: Water Can Kill

Marks: 60

### **Case 1**

After a 3 ½-week trial, a jury found Jennete Killpack, 29, guilty of killing her 4-year-old adopted daughter Cassandra by forcing approximately a gallon of water down the girl's throat in an attempt to discipline her. A few hours after the "hydro-discipline," the Killpacks called the paramedics because Cassandra was unresponsive. The paramedics delivered her to the hospital, where she died later that day. Medical investigation found that Cassandra's brain was swollen and the concentration of sodium in her blood and tissues was far below normal.

### **Case 2**

James McBride, a 25-year-old police officer, died after a 12-mile bike ride that was part of a training course. Over the course of the ride, James drank roughly three gallons of water that he brought with him in a pack. During a session that focused on how to dismount a bike, an instructor noticed that McBride looked ill and asked him to sit down. McBride complained of dizziness and nausea and then vomited. Officers initially thought he might have suffered heat stroke. Unaware that James had already consumed so much water, they gave him more water to cool him down while he sat out of the exercise. When another officer hurt himself during the exercise, an ambulance was summoned. The paramedics noticed that James was convulsing and continuing to vomit, so they brought him to the hospital. He died in the hospital the next day.

### **Questions**

1. What types of symptoms did Cassandra, and James have in common? Which organ or tissue seems to have been most affected?
2. Keeping in mind your answers to question 1, what do you think the immediate cause of death was for Cassandra, and James?
3. If you suspected that a patient's symptoms were caused by the condition suffered by Cassandra, and James, what kinds of tests would you run to confirm your suspicions?
4. Once you know the cause of their symptoms, what kind of emergency treatment might you try for a patient like Cassandra or James if you were the doctor in charge of their care?
5. Why do you think doctors administer a saline solution instead of pure water to dehydrated patients?