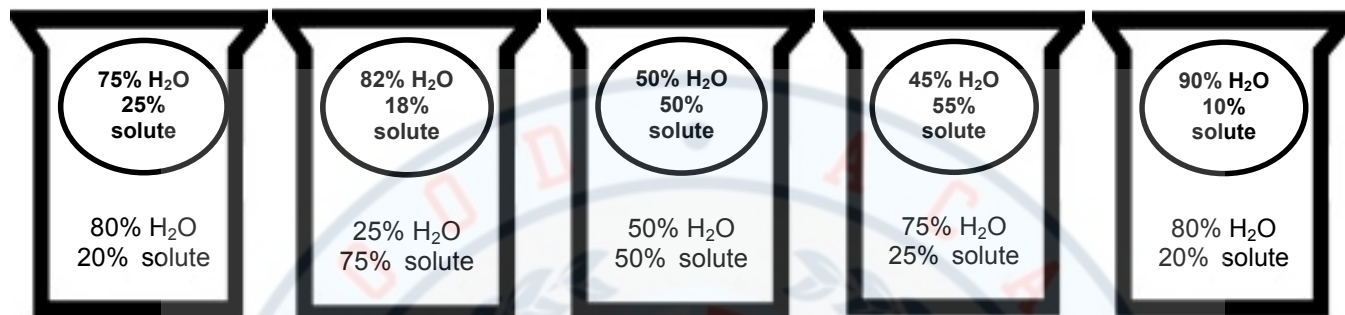


Name: _____ Date: _____ Period: _____

Cellular Transport Analysis Questions

Week # _____

Directions: Below are animal cells placed in beakers of various concentrations. Draw arrows to show which way the water would move by osmosis. Then identify the solutions as hypertonic, isotonic, or hypotonic compared to the cell.



Directions: Complete each questions based on your knowledge of osmosis.

1. Honest shellfish dealers place their oysters and clams into isotonic solutions. What happens to the mass of their oysters and clams in this type of solution?

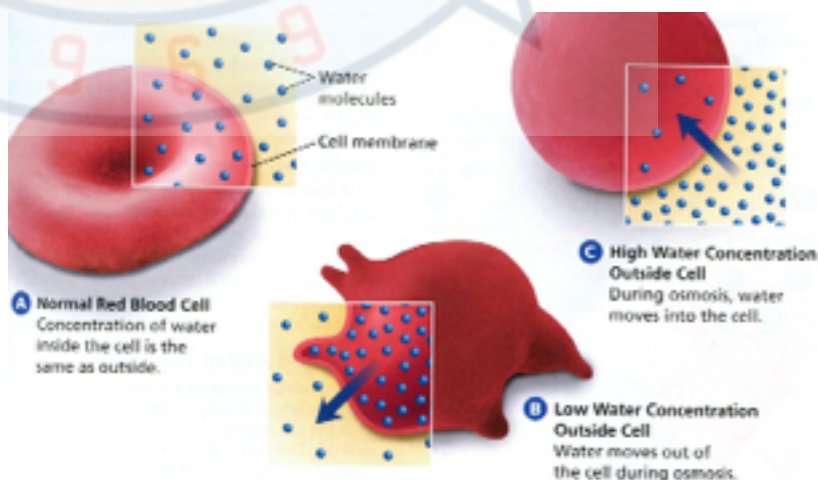
2. Dishonest shellfish dealers actually place their oysters and clams in hypotonic solutions. What happens to the oysters and clams and why would they do this?

3. Examine the blood cells in the diagram. Identify the type of solution each blood cell was exposed to and explain your answer by describing the size of the blood cell.

A: _____

B: _____

C: _____



Name: _____ Date: _____ Period: _____

Osmosis in the ER

Directions: Read and annotate the passage. Then answer the questions below.

After his lunch break, Tom, an ER nurse, didn't have long to wait before the paramedics burst in through the doors of the ambulance. As the patient was being wheeled into the emergency room, the paramedic informed Tom and Dr. Greene that the patient was a 38-year-old male with gunshot wound to the right abdomen.

Once inside the emergency room, Dr. Greene began his examination of the patient while Tom attached a pulse-oxygen monitor to the patient's finger so that the O₂ levels in the patient's blood could be monitored. Tom also inserted a catheter so the patient's urine output could be monitored.

Dr. Greene said to Tom, "It looks like the bullet missed the liver and kidney, but it may have severed an artery. Tom, grab a liter of saline and start a fast IV drip ... we need to increase his blood volume." Tom grabbed an IV bag from the nearby shelf, attached a needle to the plastic tubing, and inserted the needle into the patient's vein.

The reaction was quick and violent. The patient's heart rate began to skyrocket and Tom heard Dr. Greene shouting, "His O₂ level is falling! Pulse is quickening! What is going on with this guy?!" Tom stood frozen in place by the fear. He heard Dr. Greene continuing, "We've lost a pulse ... Tom, get the crash cart, we need to shock this guy to get his heart going again!" After an hour of trying to save the patient, Dr. Greene announced the time of death. Tom had a bad feeling in the pit of his stomach.

Then Tom noticed that the fluid in the catheter bag was bright red. "Dr. Greene, look in the bag," he said. "How could that be?" responded Dr. Greene. Tom began to trace back over his steps, trying to think of anything that could have caused this. His fear turned to terror as he looked at the now empty bag on the IV stand. Its label didn't read "Saline," but rather "Distilled Water." He looked at Dr. Greene, his heart quickly sinking, and said, "I think I may have killed the patient..."

1. What type of IV liquid did Tom think he was giving to the patient? _____
2. What type of IV liquid did Tom actually give to the patient? _____
3. What happened to the patient's blood cells as the distilled water was being administered?

4. Based on the patient's reaction, what type of solution was the distilled water? _____
5. What type of solution would the saline have been? _____