Name: . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

**Physiology Seminar: Kidneys II – Body fuid balance**

**Student Protocol**

**Explain physiological processes taking place in the individual experiments:**

Protocol 1: Control – no fluid intake (red)

Protocol 2: Normal water diuresis (blue)

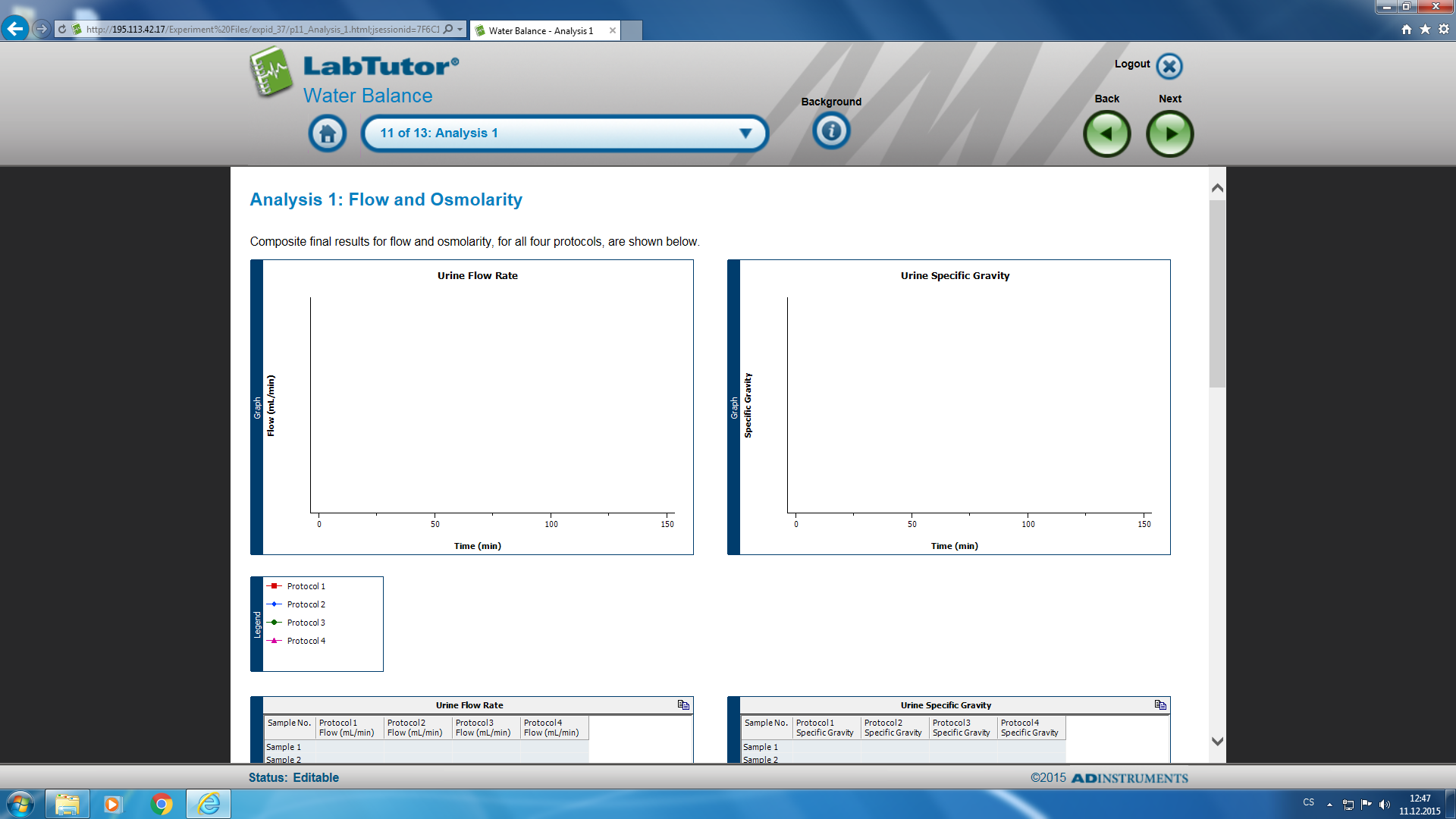
Protocol 3: Isoosmotic solution of NaCl (green)

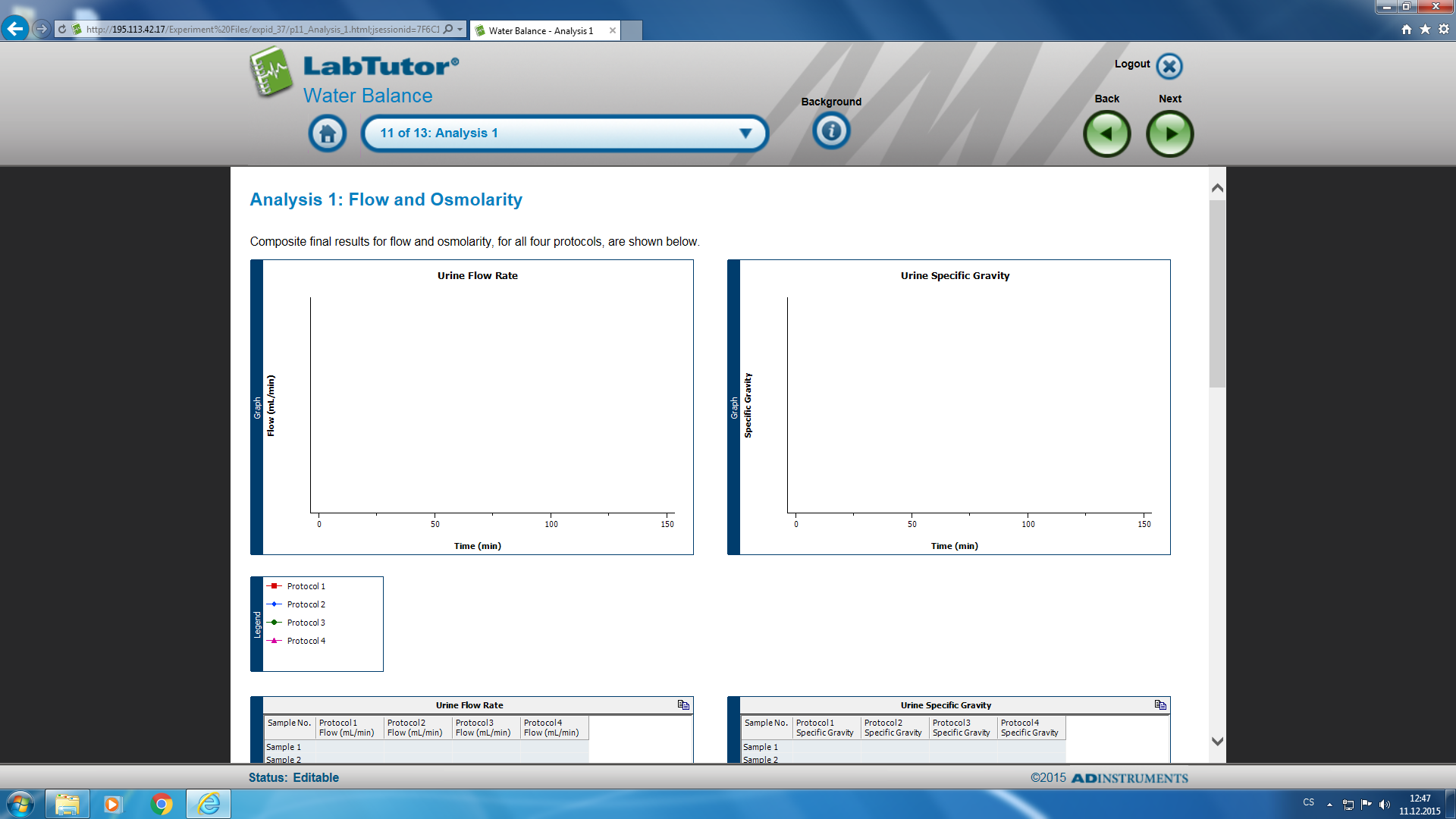
Protocol 4: Hyperosmotic solution of glucose (pink)

**Answer the following questions.**

1. What is the osmolarity of the fluid of the interstitial space of the renal cortex? Is it the same throughout the entire space?
2. What is the osmolarity of the fluid of the interstitial space of the renal medulla? Is it the same throughout?
3. Which hormone is involved in the regulation of water excretion by the kidney? What normally inhibits the release of this hormone?
4. From your own experience, try to describe two situations in which ADH secretion is stimulated independently of plasma osmolarity.
5. From the data obtained so far, try to estimate the maximum amount of water you can drink in 60 minutes without disturbing your water balance (intake-output)?
6. What happens if water intake during 60 min significantly exceeds the maximum amount I am able to excrete during this interval? Why might this be a life-threatening condition?

**Plot the results of measurements from all experimental groups into the following graphs:**





Teacher signature