Drexel University  
Office of the Dean of the College of Engineering  
**ENGR 232 – Dynamic Engineering Systems**

**Lab 8 Answer Template Section: \_\_ \_\_ Name: \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_**

**Water Clocks – Polyvascular Clepsydra** *First Last*

**Question 1:** Record your answer for here. **Answer:**  \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_

**Question 2:** Record your answer for here. **Answer:**  \_ \_ \_ \_ \_ \_ \_ \_

Give answer to at least three decimals.

**Questions 3-4:** **Paste your completed phase plot here. (2 points)**

**Question 5:** Record your solution for the two unknowns and . The first is given for you.

**Answer:** , \_ \_ \_ \_ \_ \_ \_ \_

**Question 6:** Record your answers for the cumulative outflows. The first is given for free.

**Answer:** , \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_

\_ \_

**Question 7:** The solution in the transform domain is:

whereand\_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_

**Question 8:** Complete thiscode to findthe cumulative flow vector using Laplace transforms:

syms s

A = [-1 0; 1 -1]  % system matrix

x0 = [1;1]      % initial conditions

X = … % find X here using inv()

F = … % find F here. Integration is division by s.

f = … % find f here using ilaplace.

**Question 9:** Replace the sample plot with the correct graph for a clepsydra with **four** vessels. (not 6!)

**Question 10:** Paste your completed cumulative flow graph for a clepsydra with **twelve** vessels here.

**Ready to Submit?**

Be sure all ten questions are answered. When your lab is complete, be sure to submit three files:

1. Your **completed Answer Template** as a PDF file
2. A copy of your **MATLAB Live Script**
3. A **PDF** copy of your **MATLAB Live Script** (Save-Export to PDF…)

The due date is the day after your lab section by **11:59pm** to receive full credit. You have one more day, to submit the lab (but with a small penalty), and then the window closes for good and your grade will be zero.