

ANSWER KEY - LABORATORY EXERCISE 4 FLOW CONTROL LOOP CHARACTERISTICS

3. FLOW CONTROL LOOP RESPONSE

| | |
|--|---------------|
| ... exhibit measurement noise? | Yes |
| ... reduce the amplitude of the noise? | Yes |
| ... tend to smooth out the noise? | Yes |
| Controller in Auto. SP = 30 gpm. | |
| ... overshoot of the set point? | No |
| ... time elapsed? | 1 1/2 seconds |

4. STICKY VALVE

| | |
|---|------------------------------|
| ... regular or irregular? | Regular (but not sinusoidal) |
| ... average period ... | 8 1/2 seconds |
| ... peak to peak ... controller output swing: | 7 % |
| Gain change: 1.0 to 0.5 | |
| ... average period ... | 15seconds |
| ... peak to peak ... controller output swing: | 6% |
| Dead band = 0. Stick-Slip = 0. Gain = 10 | |
| ... cure the problem? | Yes |
| ... response acceptable? | Yes |
| Add positioner. Change controller output by 10%. | |
| ... stem position response...? | Underdamped |
| Controller in Auto | |
| ... more oscillatory than before adding positioner? | Yes |
| Change gain 1.0 to 0.8. Set point change | |
| ... more acceptable response? | Yes |