

## Answers to ES205 Examination II, 1997-1998

### Problem 1

1a)  $Q_{op} \approx 300 \text{ gal/min}$ ,  $\eta \approx 55\%$

1b)  $\dot{W}_{\text{pump}} = 46,000 \frac{\text{lbf} \cdot \text{ft}}{\text{s}}$

1c)  $h_{ss} = \frac{Q_i^2}{C_d^2 A_o^2 2g}$

1d)  $5\dot{y} + y = F$

### Problem 2

a)  $T_{ss} = 62 \text{ C}$

b)  $t = 46.8 \text{ s}$

### Problem 3

I had 7 equations

### Problem 4

a)  $h = 3.66 \text{ ft}$

b)  $h = 3.42 \text{ ft}$