

ECE 300
Spring Semester, 2004
HW Set #10

April 20, 2004
wlg

Name _____
Print (last, first)

Use engineering paper. Work only on one side of the paper. Use this sheet as your cover sheet, placed on top of your work and stapled in the top left-hand corner. Number the problems at the top of the page, in the center of the sheet. **Do neat work. Underline your answers. Show how you got your equations. Be sure to show how you got your answers.** Each problem counts 10 points except problem 15.12 counts 20 points.

$$15.2 \quad y_{11} = (1/6) S, \quad y_{12} = -(1/12) S, \quad y_{21} = -(1/12) S, \quad y_{22} = (1/6) S$$

$$15.5 \quad y_{11} = (1/Z_1) S, \quad y_{22} = 0, \quad y_{21} = (Y/Z_2) S, \quad y_{12} = (1/Z_2) S$$

$$15.7 \quad y_{11} = j\omega(C_1 + C_2)S, \quad y_{12} = -j\omega C_2 S, \quad y_{21} = g - j\omega C_2 S, \quad y_{22} = \frac{1}{R} + j\omega(C_2 + C_3) S$$

$$15EF-1 \quad V_1 = 36 V$$

15.12 In addition to the Z parameters, also find the H parameters.

$$z_{11} = 400 \text{ ohms}, \quad z_{12} = 15 \text{ ohms}, \quad z_{21} = 6 \text{ ohms}, \quad z_{22} = 50 \text{ ohms}$$

$$h_{11} = 1 \text{ k}\Omega, \quad h_{12} = 3e^{-4}, \quad h_{21} = 40, \quad h_{22} = 20 \mu S; \quad \Delta H = 8e^{-3}$$

$$15.18 \quad \frac{V_2}{V_1} = \frac{h_{21} R_L}{h_{12} h_{21} R_L - (1 + h_{22} R_L)(R_1 + h_{11})}$$

$$15.24 \quad A = \frac{-1}{\gamma}, \quad B = \frac{-Z_2}{\gamma}, \quad C = \frac{-1}{\gamma Z_1}, \quad D = \frac{-Z_2}{\gamma Z_1}$$

15.27 Answers: No answers given. On your own.

$$15.39 \quad A = 3, \quad B = j8 \Omega, \quad C = 3 - j1 S, \quad D = 3 + j8$$