

PROBLEM SHEET 6

ANSWERS

1. 55.9 A, 1.2° lead
2. a) 14.9 Ω , 10 A, 84°
b) 14.9 Ω , 10 A, 84°
c) 150 Ω , 1 A, 0°
3. a) $Z = 2.1 \text{ k}\Omega$, $X = 0.63 \text{ k}\Omega$, $Y = 0.47 \text{ mS}$, $G = 0.46 \text{ mS}$, $B = 0.14 \text{ mS}$
b) $Z = 3.2 \text{ k}\Omega$, $X = 2.5 \text{ k}\Omega$, $Y = 0.31 \text{ mS}$, $G = 0.19 \text{ mS}$, $B = 0.24 \text{ mS}$
4. a) 25.8 μF
b) 0.78 A, 1.44 A
c) 140 Ω , 67 Ω , 124 Ω
d) 7.1 mS, 3.4 mS, 6.3 mS
e) 0.48
f) 180 W
5. a) 4.0 k Ω ;
b) 50 mA, 25 mA
c) $G = 0.5 \text{ mS}$, $B = 0.25 \text{ mS}$, $Y = 0.56 \text{ mS}$
d) $R = 1.6 \text{ k}\Omega$, $X = 0.8 \text{ k}\Omega$, $Z = 1.8 \text{ k}\Omega$
e) 5.6 VA
f) 5 W
6. Assignment
7. 5.6 A, 15.3°
8. 2.8 A, -4.8°
9. a) $Z = 1.98 \text{ k}\Omega$, $X = 16 \text{ k}\Omega$, $Y = 0.50 \text{ mS}$, $G = 0.51 \text{ mS}$, $B = 4.0 \text{ mS}$
b) $Z = 740 \Omega$, $X = 800 \Omega$, $Y = 1.35 \text{ mS}$, $G = 3.7 \text{ mS}$, $B = 1.46 \text{ mS}$
10. a) $Z = 600 \Omega$, $X = 630 \Omega$, $Y = 1.67 \text{ mS}$, $G = 5.6 \text{ mS}$, $B = 1.75 \text{ mS}$
b) $Z = 1.86 \text{ k}\Omega$, $X = 5.0 \text{ k}\Omega$, $Y = 0.54 \text{ mS}$, $G = 0.58 \text{ mS}$, $B = 1.46 \text{ mS}$