

ECE370 POWER & ENERGY SYSTEMS

Hints & Answers for HW #s 9 & 10

- 9.1 a) 822.5 W b) 184 Nm c) 93%
- 9.2 $R_1 = 0.08 \Omega$, $R_2 = 0.0522 \Omega$, $R_c = 90.7 \Omega$, $X_M = 5.94 \Omega$, $X_1 = X_2 = 0.797 \Omega$
- 9.3 19.7 A, 0.957 lag, 87.6%, 168.3 A, 66.5 Nm.
- 9.4 116.1 Nm 1.18 Ω/ph
- 9.5 26.2 hp, 3442 rpm
- 9.6 a) $\Delta - Y$ b) 36 MVA c) 602.5 A 1667 A
- 9.7 a) 1187 Nm b) 1236 Nm c) 88.8% d) 15.3 kW
e) 199.9 A f) 690.6 Nm g) 275.8 hp
- 9.8 a) 890.5 Nm b) 938.5 Nm c) 86.3% d) 10.1 kW
e) 4198 rpm f) 234.6 Nm g) 78.9 hp h) 54.5%
- 9.9 a) ii) 51.92% b) ii) 1.53 kW
- 9.10 841 : 1 -7.085 + j2.274 kVA