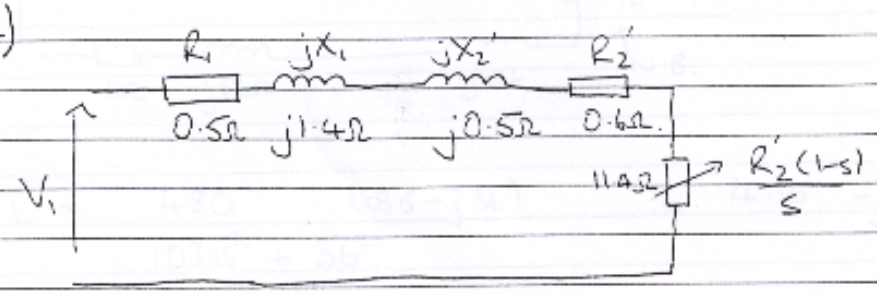
Worked Solutions - Tutorial Sheet 2.

1) Bookwork.

2)



Star connected : $V_{phase} = \frac{400}{\sqrt{3}} = 230.9\ V$

$$\tilde{I} = \frac{\tilde{V}}{R+jX} = \frac{230.9}{12.5 + j1.9} = \frac{230.9 \cdot (12.5 - j1.9)}{12.5^2 + 1.9^2}$$

$$= 18.05 - j2.74\ A_{rms}$$

$$= 18.3 \angle -8.6^\circ\ A_{rms}$$

$$T = \frac{k|I|^2 \frac{R_2'(1-s)}{s}}{\omega_r} \qquad \omega_r = (1-s)\omega_s$$

$$T = \frac{18.05^2 \cdot 11.4}{298.45} = 12.4\ Nm/phase.$$

3) No load test - See Hindmarsh page 409