

Example 4-2 (Book)

- **Additional questions**

d)
$$E_{\phi, RMS} = 4.44 N_C \phi f \Rightarrow E_{50Hz} = E_{60Hz} \frac{50}{60} = 100V_{L-N}$$
$$n_{50Hz} = n_{60Hz} \frac{50}{60} = 3000 rpm$$

- e) For the same electrical frequency the rotational speed will be 1800 rpm. Keeping the (peak) flux density the same, the flux per pole will be cut in half. At the same electrical frequency the voltage per sub-winding will therefore only be half of the voltage before. The two sub-windings are connected in series finally resulting in the same total voltage as before.