

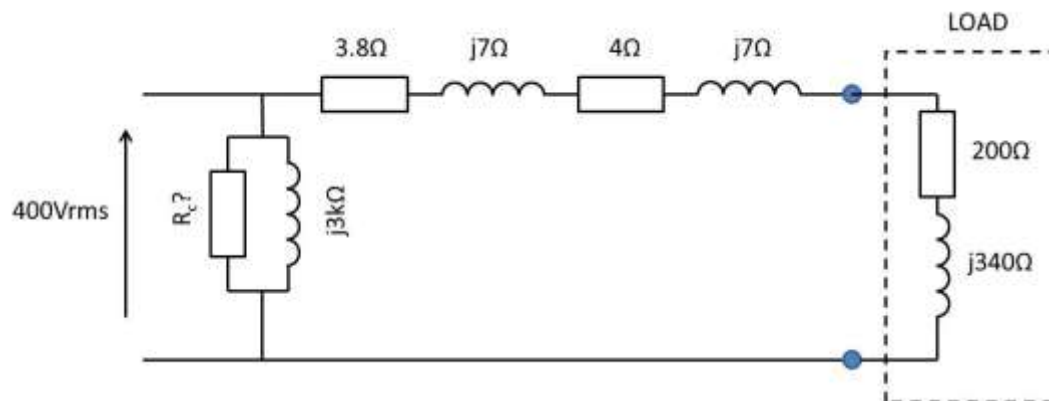
### EEE117 – Transformer exercise

The approximate equivalent circuit of a transformer is shown below (all values of resistance and reactance are already referred to the primary).

The primary is connected to a 400Vrms sinusoidal AC supply.

The primary to secondary turns ratio is 5:1

The value of the core loss resistor is not given, but the core loss is 20W



1. Calculate the value of the core loss resistor  $R_c$

2. Calculate the magnitude and phase of the primary current when the load is **disconnected**.

**3. Calculate the magnitude and phase of the primary input current when the load is connected**

**4. Calculate the magnitude and phase of the load voltage**