(1)

A transformer is made up of a 1150-turn primary coil and an open-circuited 80-turn secondary coil wound around a closed core of cross-sectional area 56 cm^2. The core material can be considered to saturate when the **rms** applied flux density reaches 1.45 T. What maximum 60-Hz **rms** primary voltage is possible without reaching this saturation level? What is the corresponding secondary voltage? How are these values modified if the applied frequency is lowered to 50 Hz?

(Pay attention to the flux is a rms value)

(2)

Why does the short-circuit test essentially show only i^2R losses and not excitation losses in a transformer?

Why does the open-circuit test essentially show only excitation losses and not i^2R losses?