

Prelab 8 - Induction Machine

(a) Read and study the selected sections (of Chapter 7) of Electric Machinery Fundamentals (by Stephen Chapman), which is posted in the class web page, (b) watch and study the video lecture on induction machine (link on the web), and (b) solve the following problem.

A simplified induction machine equivalent circuit is given below with, $V_s = 220$ V, $R_1 = 0.243$ Ω , $X_1 = 0.67$ Ω , $R_2 = 0.151$ Ω , and $X_2 = 0.67$ Ω , and $X_m = 14.03$ Ω .

1. If stator magnetic rotation speed $N_s = 1800$ rpm and the induction machine's rotor speed $N_r = 1550$ rpm, calculate P and Q provided/absorbed by the induction machine.

2. Do the problem 1 if $N_s = 1800$ rpm and $N_r = 1950$ rpm.

