

King Fahd University of Petroleum & Minerals
Electrical Engineering Department
EE 360: Home Work #6
(Induction Machines)

Due Dates (Dec. 23rd for UT Classes & Dec. 24th for SMW Classes)

1-3. From text book problems 6.5, 6.15, 6.20 (excluding the plot)

P4: A motor generator set used for providing variable frequency ac supply consists of a 10 pole 3- ϕ synchronous motor and 24 pole 3 ϕ synchronous generator. The motor generate set is fed from 25 Hz, 3 ϕ ac supply. A 6 pole 3 ϕ induction motor is electrically connected to the terminals of the synchronous generator and runs at a slip of 5%. Find

- i) the frequency of generated voltage of synchronous generator
- ii) the speed at which induction motor is running

P5: A 500 V, 3 ϕ , 50 Hz induction motor develops an output of 15 KW at 950 r.p.m. If the input p.f. is 0.86 lagging, Mechanical (considered as Rotational in this problem) losses are 7.30 W and stator losses 1500W, Find

- i) the slip
- ii) the rotor Cu loss
- iii) the motor input
- iv) the line current