Benha University
Faculty of Engineering (Shoubra)
Electrical Engineering Department
3rd year Electrical Power

Electrical Machines (2)(EPE312)
1st Semester 2014/2015
Midterm Exam
Time: 30 min.

[1] List the conditions required for synchronizing an alternator with infinite busbars.
[2] Find the synchronous impedance and reactance of an alternator in which a given field current produces an armature current of 200 A on short-circuit and a generated e.m.f. of 50 V on open-circuit. The armature resistance is 0.1 ohm. Then estimate the no load voltage,E_0, at which the alternator must be excited to deliver a load of 100 A at a p.f. of 0.8 lagging, with a terminal voltage of 200V. Also draw the phasor diagram.

Dr: Mohamed Fathy