ME-Ist Sem

Exam.Code:1017
Sub. Code: 35251

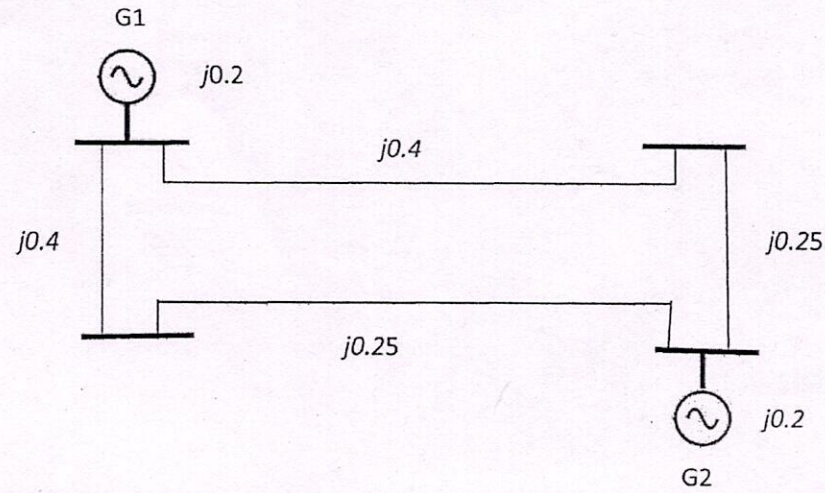
2124

M.E. Electrical Engineering (Power System)
First Semester
EE (PS)-8101: Advanced Power System Analysis

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt <u>any five</u> questions. All questions carry equal marks.

x-x-x

Q1	A power system network in shown in Fig. 1. For this power system network, compute bus admittance matrix using Singular Transformation including the generator buses.  Fig. 1	(10 Marks)
Q2	Compare the rectangular coordinates and the Polar-Coordinates based Newton-Raphson methods for load flow solution. Explain any one in detail.	(10 Marks)
Q3	Name the various methods which can be used for the analysis of symmetrical short circuits. Discuss the application of any one method with suitable example.	(10 Marks)
Q4	The incremental costs (IC) of two 250MW generators are as follows: $IC_1 = 0.2P_{G1} + 30 \;\; Rs./MWh$ $IC_2 = 0.15P_{G2} + 40 \; Rs./MWh$ Determine the most economic load division between the two generating units when the total load is 225MW. Neglect transmission losses.	(10 Marks)
Q5	Develop the mathematical model of optimal power flow problem and explain its solution using Gradient method.	(10 Marks)
Q6	Obtain the best estimate formula using method of least squares considering a three-bus example with DC load flow analysis.	(10 marks)

P.T.O.

Q7	Explain single phase AC-DC load flow problem and its solution. Draw suitable flow chart for the sequential solution of the problem.	(10 Marks)
Q8	Derive the necessary equation to determine the fault current for a single line to ground fault. Draw a diagram showing the interconnection of sequence networks for this type of fault.	(10 Marks)

x-x-x