Exam. Code: 0936
Sub. Code: 33773

2015

**B.E. (Electrical and Electronics Engineering)**
**Sixth Semester**
**EE-601: Computer Aided Power System Analysis**

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

***NOTE:*** ***Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.***

*x-x-x*

1. (a) How unsymmeterical faults are solved?
   (b) Draw sequence networks for transmission lines.
   (c ) What is transient stability?
   (d) What is AGC?
   (e) Discuss advantages of per unit system.

(5*2=10)

**PART-A**

2. (a) Describe load flow solution with PV buses using Gauss-Seidel method.
   (b) Drive power angle equation for a two machines system.

(5,5)

3. (a) Discuss NR algorithm for power flow analysis with the help of flowchart.
   (b) The moment of inertia of a 4 pole, 100 MVA, 11 kV, 3 phase. 0.8 power factor, 50 Hertz turbo generator is 10000 kg-m$^2$. Calculate H and M.

(5,5)

4. (a) Define transient stability? Apply equal area criteria to a machine swinging with respect to an infinite bus.
   (b) Discuss with the help of block diagram load frequency control in two areas system.

(5,5)

**PART-B**

5. Three phase generator rated at 10 MVA, 11KV has a solidly ground in neutral the sequence impedances of alternator are Z1= j6, Z2=j7 and $Z_0$=j5 per unit. The resistances are negligible.

(i) What value of reactance and resistance must be placed in general neutral for a single line to ground fault of zero fault impedance of the rated current?

(ii) What value of reactance is needed to connect from neutral to ground such that 3 phase fault and SLG fault currents are equal?

(10)

P.T.O.

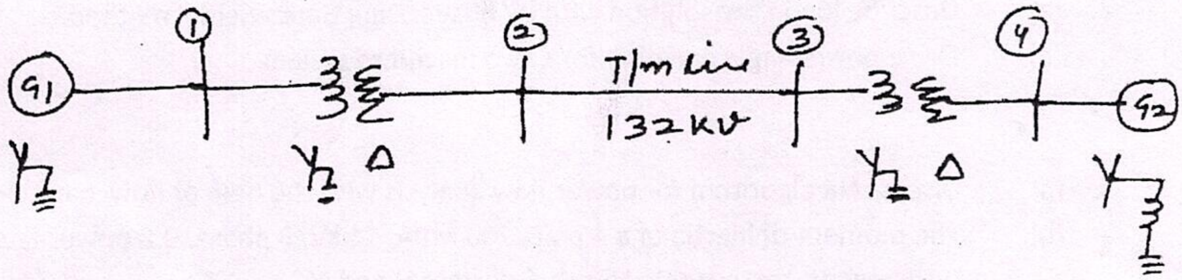
6. (a) Drive and expression for double line to ground fault and also drive it's sequence networks.

(b) A three phase 100 MVA, 10 kV alternator has 5% reactance. Find the external reactance per phase to be connected in series with the alternator so that three phase short circuit does not exceed 8 times the full load current.

(5,5)

7. For a given figure which shows a simple power system network draw the positive, negative and zero sequence networks. The numerical data of various components in the power system is as given under. All values are in per unit.

Generator 1:50 MVA, 11 KV, X1= X2=0.5, $X_0$=0 1
Generator 2 is on 200 MVA, 11 KV X1= X2=0.23 and $X_0$=0.2
T1= 50 MVA, 11/132 kV, X1= X2=0.1, $X_0$= 0.4,
T2 is 200 MVA, 11/132 kV, X1=X2=0.1, $X_0$=0.2,
While 132 kV line is on 100 MVA, 132 KV, X1=X2=0.1 $X_0$=0.5.




(10)

x-x-x