

**SUBJECT CODE NO:- P-8056**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**M.E.(Electrical Power System) Examination MAY/JUNE-2016**  
**Computer Aided Power System Analysis (CAPSA)**  
**(Revised)**

[Time: Three Hours]

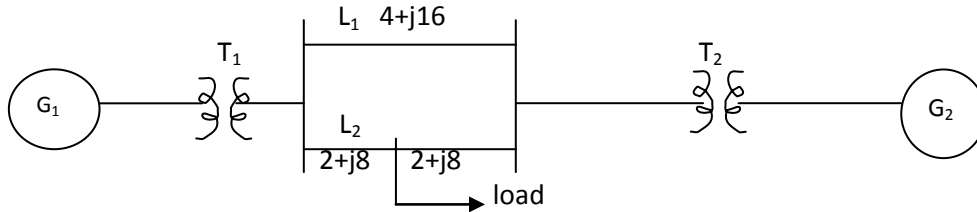
[Max Marks:80]

“Please check whether you have got the right question paper.”

- N.B
- i) Solve any two questions from each section.
  - ii) Use suitable data if required.

SECTION:A

- Q.1
- a) What is PU system? Why it becomes necessary to use PU system for power system analysis? 05
  - b) Draw the PU impedance diagram of the power system shown in fig.1. Assume base values of 100MVA & 100kv in transmission line section. The rating of the machines & transformers are as follows. 15
- $G_1 \& G_2: 50mVA, 15KV, x_{g1} = x_{g2} = 0.1PU$   
 $T_1: 80mVA, \frac{15}{132kv}, x_{T1} = 0.2PU$   
 $T_2: 40mVA, 15/132kv, x_{T2} = 0.3PU$   
 Load: 50mVA, 0.8 pf lagging operating at 124kv.



- Q.2
- a) Define sequence networks for unbalanced network impedances. 10
  - b) Draw the positive, negative & zero sequence networks of the power system shown in fig.2. 10

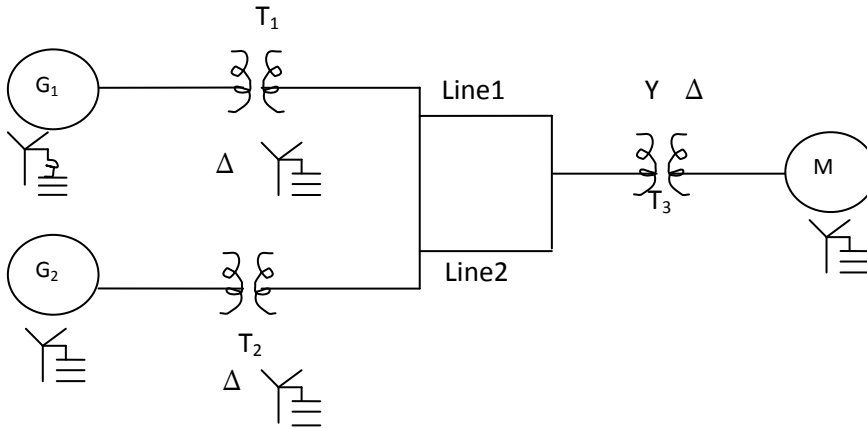


Fig.2 Q.2 b

- Q.3
- a) Derive the expression for fault current for LLG fault in the power system. Draw the sequence network connection for the same. 10
  - b) Discuss about the sequence impedance of synchronous machine 10

SECTION:B

- Q.4 a) What is mean by charge of summery? What way it is useful in power system analysis? Draw generalized fault diagram. 10  
b) Describe the method of simultaneous fault analysis by using two POA network theory. 10
- Q.5 a) Develop load flow equations suitable for solution by NR method. Using nodal admittance matrix. 10  
b) Compare the admittance & impedance matrix techniques used in power system analysis. 10
- Q.6 Write short notes (any two) 20  
i) Simultaneous faults analysis by matrix transformation.  
ii) Computation of fault current & voltages using series fault transformations.  
iii) Gauss Seidal algorithm for load flow analysis.