Roll No. | | | | | | | | | | | | |  Total No. of Pages : 02

Total No. of Questions : 08

M.Tech (Power System)(2018 Batch) (Sem.–1)

# POWER SYSTEM ANALYSIS

Subject Code : MTPS-101-18

Paper ID : [75774]

Time : 3 Hrs. Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**
1.Attempt any FIVE questions out of EIGHT questions.
2.Each question carries TWELVE marks.

1. Derive the load flow algorithm using Gauss Seidal method with flow chart and discuss the advantages of the method.

2. What do you mean by "LOAD FLOW ANALYSIS" in power system networks? Discuss the classification of buses in load flow analysis. Also mention the importance of buses in load flow analysis.

3. Write the comparison of load flow methods between Gauss Seidel, Newton Raphson and Fast Decoupled load flow methods.

4. A single line to ground fault (on phase a) occurs on the bus 1 of the system of Fig. 1. Find :

   a) Current in the fault

   b) Short circuit current in the transmission line in all the three phases.

   c) Short circuit current in phase a of the generator.

   d) Voltage of the healthy phase of the bus 1.

   Given : Rating of each machine: 1200kVA, 600 V with $X_1=X_2=10\%$, $X_0= 5\%$. Each three phase transformer is rated 1200kVA, 600 V–Δ/3300 V-Y with leakage reactance of 5%. The reactance of the transmission line are $X_1=X_2=20\%$ and $X_0=40\%$ on a base of 1200 kVA, 3300 V. The reactances of the neutral grounding reactors are 5% on the kVA and voltage base of the machine.

Note : Use $Z_{Bus}$ Method.

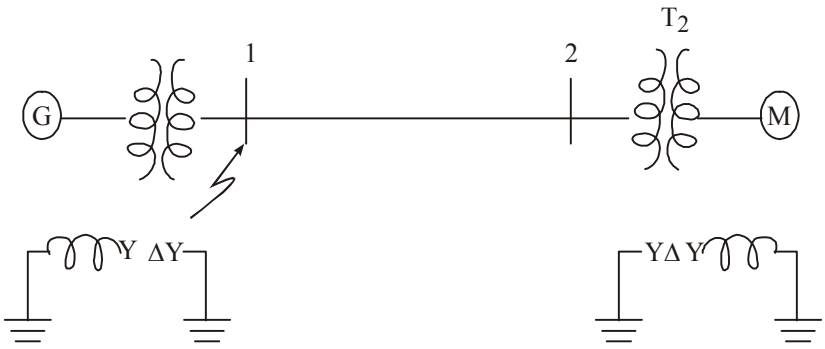


Figure - 1

5. Discuss sensitivity factors in contingency analysis program. Also give the flow chart for. a simple technique for contingency analysis.

6. What is voltage collapse, also discuss prevention of voltage collapse?

7. Write the basic solution for Least Squares Estate Estimation.

8. Discuss identification of Bad data. Also give the suppression of Bad data.