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

Total No. of Questions : 8

M.Tech. (EE) (2018 Batch) (Sem.–1)

POWER SYSTEM ANALYSIS

Subject Code : MTEE-101-18

Paper ID : [75215]

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. The following is the system data for a load flow solution. Determine the voltages at the end of first iteration using Gauss-Seidel method. Take $\alpha = 1.6$.

The line admittances:

Bus code	Admittance
1-2	2-j8
1-3	1-j4
2-3	0.666-j2.664
2-4	1-j4
3-4	2-j8

The schedule of active and reactive powers :

Bus code	P (p.u.)	Q (P.u.)	V(p.u.)	Remarks
1	-	-	1.06	Slack
2	0.5	0.2	1+j0	PQ
3	0.4	0.3	1+j0	PQ
4	0.3	0.1	1+j0	PQ

2. Discuss the contingency analysis procedure using flow-chart to enhance the power system security.

3. Derive Swing equation used for stability studies in power system.

4. Describe the methods of improving transient stability.

5. The short circuit MVA at the bus bars for a power plant A is 1000 MVA and for another plant B is 800 MVA at 33 kV. If these two are to be interconnected by a tie- line with reactance 1.1 ohm. Determine the possible short circuit MVA at both the plants.

6. Write the notes on following related to the state estimations in power system.

   a. Observability

   b. WSL method

7. Explain the concept of voltage stability with the help of a simple radial power system. How the critical voltage is important in P-V characteristics of the power system?

8. Explain sparsity technique and its application in power flow studies.