

M.Tech. Electrical Power System (CBCS Pattern) Semester-II
PEPS241 - Computer Application in Power Systems

P. Pages : 1

Time : Three Hours



GUG/W/24/11025

Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Answer **any five** questions.
 6. Use of non-programmable calculator is permitted.

1. Develop an algorithm for the formation of z-BUS matrix. 14
2. Specify the following: 14
 - i) Oriented graph
 - ii) Loop matrix
 - iii) Cut-set matrix
 - iv) Incidence matrix
 - v) Primitive network
3. What is the importance of incidence matrix in power system network solution? Explain. 14
4. Explain with the help of flow chart N-R method of load flow solution for n-bus system. 14
5. a) Compare power flow solution using GS and NR method. 7
b) Using suitable transformation matrix. 'T' transform the 3 ϕ impedance matrix to its equivalent in 0, 1, 2 sequence quantities. 7
6. Explain solution of swing equation by Euler's method. Also Euler's modified method. 14
7. a) Explain how load scheduling considering transmission losses in a plant is done. 7
b) Explain economic divisions of load between various plants in the power system in terms of incremental cost of plant, received power. 7
8. a) With the help of flow chart explain the algorithm to be used for transient stability of power system which employs RK2 method. 7
b) Explain the unit commitment by dynamic programming method. 7
