

M.E. First Semester (Electrical (Electronics & Power) Engineering) (New-CGS)

13316 : Power Systems Modelling & Simulation : 1 EEPME 4

P. Pages : 1

Time : Three Hours



AW - 3580

Max. Marks : 80

- Notes :
1. Assume suitable data wherever necessary.
 2. Illustrate your answer necessary with the help of neat sketches.
 3. Use of pen Blue/Black ink/refill only for writing the answer book.

1. What do you mean by primitive Network and how they are represented in power system studies? 13

OR

2. What are the elements of the following. 13
- | | |
|----------------------------------|------------------------------------|
| a) Branch Path incidence matrix. | b) Basic cut-set incidence Matrix. |
| c) Basic loop incidence matrix. | d) Bus incidence matrix. |

3. Compare Gauss-Seidel and Newton-Raphson method used for load flow studies. 13

OR

4. Explain Gradient method for solution of optimal power flow. 13
5. Explain different static security levels of power system. Also explain factors affecting power system security? 14

OR

6. Explain the bounding algorithm in the contingency analysis with suitable examples. 14
7. Explain what do you mean by state estimation of power system and how does it differ from load flow solutions? 14

OR

8. What is orthogonal decomposition algorithm? Explain the method of state estimation by orthogonal decomposition with a suitable example. 14
9. With reference to multimachine system with constant impedance loads, derive the expression for the Matrix-'M' for an 'n' machine system. 13

OR

10. What is sparse matrix? What are the advantages and disadvantages of sparse matrix? 13
11. State and discuss following algorithms: 13
- | | |
|------------------------|---------------------------|
| i) Runge-Kutta method. | ii) Forward Euler method. |
|------------------------|---------------------------|

OR

12. Write and explain algorithm for obtaining swing equations for transient stability study using Euler's modified method. 13
