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

13316 : Power Systems Modelling & Simulation : 1 EEPME 4

P. Pages : 1 | AU - 3411

Time : Three Hours | Max. Marks : 80

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Notes : 1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Diagrams and chemical equations should be given wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.

1. Explain with an example how graph theory can be used to represent the power system network ? 13

OR

2. Write a note on : 13

i) Augment CutSet Incidence Matrix $\hat{C}$ and
ii) Cutset and circuit equations.

3. Explain the procedure of Gauss-Siedel method to find the solution of algebraic equations ? Also state the assumptions in it ? 14

OR

4. Explain the Newton's method for optimal power flow solution ? Also state its advantages over the Gradient method ? 14

5. Discuss the factors affecting power system security ? 13

OR

6. Explain the term performance Index (PI) for contingency selection with the help of an example ? 13

7. Discuss the principles of state estimation with the help of simple DC load flow example ? 13

OR

8. Explain with the help of block diagram the various functions to be performed in an operation control center computer system ? 13

9. Write a note on : 13
"Application of Sparse Matrix for representation of Power System" ?

OR

10. Explain the concept of travelling waves ? Explain Bewley-Lattice diagram in detail ? 13

11. State and discuss following algorithms : 14
i) Forward Euler method. ii) Runge - Kutta method.

OR

12. Write a note on : 14
i) Accuracy & Error analysis and
ii) Numerical stability analysis for the Numerical Integration technique.

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