

Student Exam No:- \_\_\_\_\_

GANPAT UNIVERSITY  
M.TECH SEM-I ELECTRICAL ENGINEERING  
REGULAR EXAMINATION DEC-2013

3EE102:-COMPUTER METHODS IN POWER SYSTEM ANALYSIS

Time: 3 Hours

Total Marks:-70

- Instructions: - 1. Attempt all questions.  
2. Make suitable assumptions wherever necessary.  
3. Figures to the right indicate full marks.

SECTION-I

- Que-1 [A] Explain with flow chart gauss siedel method used in power flow studies. [06]  
[B] Discuss how DC load flow analysis is carried out. [06]

OR

- Que-1 [A] Explain with flow chart Newton Raphson method used in power flow studies. [06]  
[B] Discuss how Optimal Power Flow analysis is carried out. [06]

- Que- 2 [A] What do you mean by sparse matrix? Discuss how sparsity technique is useful for power system network. [06]  
[B] Explain how short-circuit analysis is carried out using bus impedance matrix. [06]

OR

- Que- 2 [A] Discuss relative merits and demerits of Gauss Siedel, Newton Raphson, decoupled and fast decoupled method used in load flow studies. [06]  
[B] Explain Z-bus building algorithm. [06]

- Que-3 [A] How the concept of smart grid is useful for power system network. [06]  
[B] Discuss various types of bus used in load flow studies. [05]

SECTION-II

- Que-4 [A] Why accuracy of load forecasting is important? What will happen if load forecast is too low or too high? [06]  
[B] Discuss various load forecasting approach along with their relative merits and demerits. [06]

OR

- Que-4 [A] Draw the flow -chart of contingency analysis procedure. [06]  
[B] Discuss how deterministic and stochastic component of load duration curve are estimated? [06]

Que-5 [A] Explain the following computational requirements used for state estimation of power system. [06]

(i) Network observability (ii) Ill-conditioning

[B] Discuss various operating states of power system. [05]

OR

Que-5 [A] Explain the concept of external system equivalence using suitable derivation. [06]

[B] Discuss the function of SCADA and energy management centers. [05]

Que-6

[A] Explain various sub-blocks used in state estimation using overall block diagram. [06]

[B] Describe how bad data suppression is carried in state estimation algorithm. [06]

END OF PAPER

Best of Luck