

Code: EEPC2T3

I M.Tech - II Semester - Regular Examinations - December 2013

**REAL TIME CONTROL OF POWER SYSTEMS
(POWER SYSTEM CONTROL & AUTOMATION)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Explain the need of State estimation in power systems? 7 M
b) Explain the theory of Maximum Likelihood Concepts in State Estimation with the help of an example. 7 M
2. a) What is Hypothesis Testing and Chi-squared distribution? 7 M
b) Explain about the Network Observability and Pseudo-measurements in Bad data detection? 7 M
3. a) Explain how the contingency analysis is done using Sensitivity factors and also draw flowchart. 7 M
b) Explain the factors affecting Power System Security. 7 M
4. a) What are the major functions that are carried out in an operations control center? 7 M
b) Explain briefly how the system states are continuously monitored and controlled? 7 M

5. Explain the hardware components and functional aspects of SCADA system using a Fundamental block diagram. 14M
6. a) How does the bifurcation analysis help in determining the voltage stability limit? 7 M
- b) Discuss the mechanism of voltage collapse in a power transmission systems? 7 M
7. a) Discuss the relation between the voltage stability limit and the Jacobian? 7 M
- b) Develop the concept of voltage stability using the method of optimal power flow? 7 M
8. a) Explain how the Fault diagnosis is done for Power system using State Estimation? 7 M
- b) Explain how the ANN is applied for Short term load Forecasting? 7 M