M.Tech. 2nd Semester (Electrical Power Systems) Examination, May-2017

REAL TIME CONTROL OF POWER SYSTEM

Paper-MTEPS-203

Time allowed: 3 hours]

[Maximum marks: 100

Note: Attempt five questions in total. All questions carry equal marks.

- 1. (a) What is state estimation? Briefly explain sequential and non-sequential state estimation methods to process measurements?
 - (b) Distinguish between all the types of state estimations.
- 2. (a) What are bad data in state estimation? Explain bad data detection technique.
 - (b) Briefly explain identification and elimination methods of bad data in state estimation.
- 3. (a) Derive contingency analysis for generator and line outage by iterative linear power flow method.
 - (b) Short note on security concept and network sensitivity methods.

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- **4.** (a) What is real time data used in computer control? Explain its needs.
 - (b) Explain in detail the computer control of power system.
- 5. (a) Define SCADA and explain energy control centers in detail.
 - (b) What are SCADA implementation considerations? Explain software requirement for implementing functions.
- 6. (a) Explain in detail voltage stability and voltage security.
 - (b) Write a note on voltage collaMTEPSe.
- 7. (a) Discuss following in brief:
 - (i) Voltage stability in mature power systems
 - (ii) Long term voltage stability.
 - (b) Explain voltage stability analysis 'P-V' curves and 'Q-V' curves.
- 8. (a) Give basic concept and definition of Al and ANN in power system.
 - (b) Explain short term load forecasting and fault diagnosis.