

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VIII • EXAMINATION – WINTER • 2014**

**Subject Code: 180906****Date: 25-11-2014****Subject Name: Advanced Power System - II****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Give detail classification of voltage stability. **07**  
(b) Explain in detail the deregulation of power supply and its advantage. **07**
- Q.2** (a) Explain contingency analysis in detail and its importance. **07**  
(b) Define load forecasting. Classify forecasting methodology & explain. **07**
- OR**
- (b) Explain least square approximation method for state estimation. **07**
- Q.3** (a) Why reactive compensation is required. Explain different methods of reactive compensation. **07**  
(b) For a transmission line connected between two buses, derive the expression of voltage regulation and also establish from the phasor diagram and the equations that the Q and V have a strong coupling **07**
- OR**
- Q.3** (a) Write short note on sensitivity factors used in security analysis. **07**  
(b) Explain voltage collapse and state main factors that leads to voltage collapse. **07**
- Q.4** (a) Explain system state classification with relevant figures clearly showing the security levels and transition between different security levels **07**  
(b) Discuss power system restoration after a black out. **07**
- OR**
- Q.4** (a) Write short note on Treatment on Bad Data of state estimation. **07**  
(b) What are the factors that affect voltage stability. **07**
- Q.5** (a) Explain static and dynamic state estimation of power system. **07**  
(b) Explain emergency control with an example. **07**
- OR**
- Q.5** (a) Write a short note on Role of Transformer on Voltage Control of a Power System **07**  
(b) Explain a vertically integrated utility of Power system Structures. **07**

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