

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013****Subject Code: 180906****Date: 09/05/2013****Subject Name: Advanced Power System - II****Time: 10:30 am TO 01:00 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) What do you mean by state estimation? Discuss External System Equivalency. **07**

(b) Explain how state estimation used in power system. **07**

Q.2 (a) What are major functions of system security? Explain them in brief. **07**

(b) What is bad data in state estimation? How bad data are detected and suppress in state estimation. **07**

OR

(b) Explain power system operating states with neat diagram **07**

Q.3 (a) Derive expression for voltage regulation of a transmission line and show its relation with reactive power. **07**

(b) For a three phase lossless transmission line has inductive reactance of 0.6 ohm/km and capacitive admittance is 50 μ s/km. If the system voltage at the sending end is 220 kv (L-L) and the line length is 100 km. Find (1) Electrical line length of the line (2) surge impedance of line (3) receiving end voltage at no load with sending end voltage as reference (4) sending end current (5) reactive power at sending end and (5) surge impedance loading . **07**

OR

Q.3 (a) Define load forecasting. Give classification based on lead time and forecasting methodology and explain them in brief **07**

(b) Discuss average and trend term estimation in load forecasting **07**

Q.4 (a) Describe Auto-Regressive Model and Auto- regressive Moving Average Model for load forecasting **07**

(b) Discuss factors affecting voltage stability **07**

OR

Q.4 (a) Discuss concept of black out and restoration process **07**

(b) Discuss concept of mechanism of voltage collapse **07**

Q.5 (a) What do you mean by deregulated power system? Discuss its advantages and relative limitations to vertical integrated system **07**

(b) Explain function of different entities in deregulated power system **07**

OR

Q.5 (a) Derive expression for critical receiving end voltage and critical power angle at voltage stability limit for two bus power system **07**

(b) Discuss reactive compensation methods for heavily loaded and voltage stressed power system to enhance voltage stability **07**
