Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**PDDC - SEMESTER–VIII • EXAMINATION – SUMMER • 2015**

**Subject Code: X80904** **Date: 13/05/2015**

**Subject Name: Advance Power System - II**

**Time:10:30 am - 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.**

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|---|---|---|---|
| **Q.1** | **(a)** | Explain transition from an alert state to an emergency state of a power system with suitable example. | **07** |
| | **(b)** | What is voltage stability? Explain various types of voltage stability? | **07** |
| **Q.2** | **(a)** | Describe power system operating states with the help of a neat figure. | **07** |
| | **(b)** | Derive the expression of critical voltage and angle at receiving end at voltage stability limit. | **07** |
| | | **OR** | |
| | **(b)** | Derive expression of mid-point voltage of a transmission line in terms of real power flow and line length. | **07** |
| **Q.3** | **(a)** | Write a short note on Indian scenario of power systems and Electricity act, 2003. | **07** |
| | **(b)** | Describe structure of deregulated power systems in India. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain static and dynamic state estimation of power system. | **07** |
| | **(b)** | Explain the causes and consequences of deregulated industrial load. | **07** |
| **Q.4** | **(a)** | Discuss vertically integrated utility in brief. | **07** |
| | **(b)** | How is the long term load predictions done using econometric model? Explain. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain various applications of state estimations in a power system. | **07** |
| | **(b)** | How is the reactive load forecasting done? Explain with example. | **07** |
| **Q.5** | **(a)** | Write a detail note on – “Power System Security”. | **07** |
| | **(b)** | What is reactive power compensations? Explain it for redial transmission line for on no load and heavy loading condition. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Describe process of restoration after a black out. | **07** |
| | **(b)** | Explain load forecasting methodology with estimation of average and trend Terms. | **07** |

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