

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER – IV • EXAMINATION – WINTER 2012

Subject code: X40903**Date: 29/12/2012****Subject Name: Power System Analysis and Simulation****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.

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|-----|-----|--|----|
| Q.1 | (a) | Derive expression of ABCD parameters for medium transmission line using nominal π method.. | 07 |
| | (b) | A transmission line 200 km long delivering 25 MVA at 0.85 lagging power factor to a balanced load at 132 KV .The line conductors are spaced equilaterally 2.5 meter apart. The conductor resistance is 0.11 ohm per km and its effective diameter is 1.6 cm.Neglect leakage.Find sending end voltage and voltage regulation by nominal π method. | 07 |
| Q.2 | (a) | Explain briefly Surge Impedance loading of transmission line.. | 07 |
| | (b) | Explain briefly Tap changing transformer. | 07 |
| | | OR | |
| | (b) | Explain open conductor faults with neat diagram. | 07 |
| Q.3 | (a) | Explain zero sequence networks of transformers. | 07 |
| | (b) | Explain bus impedance matrix method. | 07 |
| | | OR | |
| Q.3 | (a) | Compute following in polar form (1) α^2+1 (2) $1-\alpha+\alpha^2$ | 07 |
| | | (3) $3\alpha^2+4\alpha+3$ (4) jX | |
| | (b) | A single phase resistive load of 50 KVA is connected across line BC of a balance supply of 3 KV. Compute the symmetrical components of the line currents. | 07 |
| Q.4 | (a) | Explain critical disruptive voltage and radio interference due to corona. | 07 |
| | (b) | Explain factors affecting corona. | 07 |
| | | OR | |
| Q.4 | (a) | State advantages of neutral grounding. Explain earthing transformer. | 07 |
| | (b) | Explain resonant grounding with diagram. | 07 |
| Q.5 | (a) | Explain phenomenon of overvoltage due to arcing ground. | 07 |
| | (b) | Explain three phase sudden short circuit of synchronous machine. | 07 |
| | | OR | |
| Q.5 | (a) | Explain travelling waves on transmission line. | 07 |
| | (b) | Derive expression for ABCD parameters for long transmission lines. | 07 |
