Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**PDDC 2ND Semester Examination – July- 2011**

## Subject code: X20902

## Subject Name: Electrical measurement I & II

**Date:15/07/2011** **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)** | Which are the different methods of power measurement in 1-ph and 3-ph systems | **07** |
| | **(b)** | With neat sketch explain the two-wattmeter method of power measurement | **07** |
| **Q.2** | **(a)** | Discuss the loss of charge method for high resistance measurement. | **07** |
| | **(b)** | With neat sketch explain KD bridge for law resistance measurement | **07** |
| | | **OR** | |
| | **(b)** | Discuss primary standards and secondary standards. What do you understand by substandard meters? | **07** |
| **Q.3** | | A balanced schering bridge ABCD has AB a standard capacitor of 1000pF with loss angle 2 X $10^{-4}$, BC G 1300 ohm resistor in parallel with 24pF capacitor, CD a 1000 ohm resistor, DA the capacitor under test. Determine the capacitance loss angle of the capacitor under test. The supply frequency is 1000 Hz. | **14** |
| | | **OR** | |
| **Q.3** | **(a)** | State the condition of bridge balance. What are the detectors used in bridge measurement? | **07** |
| | **(b)** | Which bridge is used for frequency measurement. Draw the circuit for the same. | **07** |
| **Q.4** | | Discuss with neat diagram the DC potentiometer-Crompton Potentiometer with its Calibration & test procedure | **14** |
| | | **OR** | |
| **Q.4** | | Discuss with neat diagram the AC polar potentiometer for<br>(i) Stander **diasation** and<br>(ii) testing procedure | **14** |
| **Q.5** | **(a)** | What is the difference in moving iron wattmeter and electro dynamometer and electro dynamometer type wattmeter? | **07** |
| | **(b)** | With sketch explain **Quadrant** type electrostatic voltmeter. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | With phase diagram explain the working principle of current transformer. State its applications. | **07** |
| | **(b)** | Explain working principle of induction type energymeter. | **07** |

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