

2005 JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY**II B.TECH ISEMESTER SUPPLYMENTARY EXAMINATIONS
ELECTRICAL AND ELECTRONICS MEASUREMENTS
(ELECTRONIC & INSTRUMENTATION ENGINEERING)**

MAY 2005

TIME: 3 HOUR
MARK: 80

ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS

1. Derive the expression for R_h in shunt type ohm-meter. Also prove with an example its suitability for very low resistance measurement.
2. With the help of a neat sketch and circuit connections for a single phase crossed coil, describe the working of polarized-vane power factor meter.
3. (a) Explain a ramp type digital volt meter using voltage to time conversion principle.
(b) A dual slope integrating type of A/D converter has an integrating capacitor of $0.1 \mu\text{F}$ and a resistance of 100 K if the reference voltage is 2 volt and the output of the integrator is not to exceed 10 volts , what is the max time thereference voltage can be integrated.
4. (a) What are the constituent elements of a Digital Multimeter?
(b) For measuring small values of capacitance, a 60 MHz source is to be used in a capacitance meter. What value of series resistance is required if the phase shift is to be kept below 5.7° for full scale capacitance reading of $1, 10, \text{ and } 100 \text{ PF}$.
5. (a) Explain the working operation of differential deflection amplifier for an oscilloscope.
(b) Give the specifications of CRO.
6. (a) Explain the working operation of a storage CRT with multiple targets and two electron guns with secondary emission curves.
(b) With neat figure, explain schematic view of a bitable storage tube.
7. (a) Explain the term Capability of a 'phase lock' connected with function generator.
(b) Explain briefly about various types of signal generators.
(c) What is the necessity to have TTL output on a signal generator and a frequency counter?
8. (a) Explain with the help of a block diagram how the period can be measured?
(b) What is meant by time base error and explain a calibration method to improve the accuracy of it.