Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI- EXAMINATION – SUMMER 2016

Subject Code:160905 **Date:11/05/2016**

Subject Name:Electrical & Electronic Measurement

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.**
4. **Consider each question as 7 Marks**

Q.-1 (A) Which are the different type of errors? Which are the sources of errors?

(B) The expected value of voltage across a resistor is 50 v. However, the measurement gives a value of 49 V. Calculate

(i) absolute error (ii) % error

(iii) relative accuracy (iv) % accuracy

(v) error expressed as a percentage of the full scale deflection is 0-100 Volt.

Q.-2 (A) By neat circuit dia. Explain the process of bridge balance for "Anderson's Bridge" State its applications advantages and disadvantages.

(B) ABCD id 4 arm Schering Bridge having detector on BD & supply on AC. On Branch AB the test specimen-a sheet of Bakelite 4.5 mm thick is tested at 50 Hz between electrodes 0.12 m. in diameter. The standard air capacitor C_2 on branch AD. of 106 pF capacitance, a non reactive resistance R_4 of 1000/∏ ohms in parallel with a variable capacitor C_4 = 0.5 μF branch CD, and a non reactive variable resistance R_3 – branch CB.
Balance is obtained with C_4 =0.5 μF and R_2 = 260 ohms Calculate the capacitance, p.f., and relative permittivity.

OR

(B) What is the requirement in good detectors. State different detector used in bridge balance.

Q.- 3 (A) Explain the working of CT with neat circuit diagram and phasor diagram.

(B) Derive the expression for ratio error and phase angle error with the help of phasor diagram.

OR

Q.-3 (A) Explain any one method of CT testing.

(B) Explain any one method of PT testing.

Q.-4 (A) How to locate cable fault by murray loop test.

(B) A length of cable is tested for insulation n resistance by the loss of charge method. A voltmeter with infinite input resistance, is connected with cable conductor & earth, forming therewith a joint capacitance of 600 pF. It is observed that after charging the Voltage falls from 250 V to 92 V
in 1 minute. Calculate the insulation resistance of cable.

OR

Q.-4 (A) With neat circuit diagram show the method of determining the hysteresis loop of magnetic torroidal specimen.

(B) Write down technical notes on Crompton's Potentiometer.

Q.-5 (A) Explain the vibration Galvanometer with neat circuit diagram.

(B) Explain T. H. D. for distorted sine waves. How the harmonic analysis is done by any Analyser you know.

OR

Q.-5 (A) What is the importance of instrumentation amplifier? Explain it with neat Circuit dia.

(B) Explain chopped and modulated DC amplifier.