AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGG.

SESSIONAL TEST – 2

Course	**: B. Tech.**	**Semester**	**: III**
Session	**: 2017-18**	**Section**	**: EN- 1 & 2**
Subject	**: EMMI**	**Sub. Code**	**: REE-302**
Max. Marks	**: 50**	**Time**	**: 2 hours**

Note: Answer **all** the sections

Section A

A. Attempt all the parts. **(5x2=10)**

1. Give the range for measurement of low, medium and high resistance. L
2. Justify unsuitability of Hay's Bridge for measurement of low Q inductor. M
3. Why the secondary of C.T. should never be open while the primary winding is energized? L
4. Define burden of instrument transformers. L
5. What is the use of guard circuit in the measurement of high resistance? L

Section B

B. Attempt all the parts. **(5x5=25)**

6. Derive balance equation of Anderson's Bridge along with its phasor diagram. Mention advantages and disadvantages of this bridge. H
7. A 100/5 A, 50 Hz current transformer has a bar primary and a rated secondary burden of 12.5 VA. The secondary winding has 196 turn and a leakage reactance of 0.96mH. with a purely resistive at full rated load, the magnetization mmf is 16 A and the loss excitation requires 12 A. Find the ratio and phase angle error. M
8. Describe Voltmeter-Ammeter method for the measurement of medium resistance. L

9. Explain the measurement of low resistance using Kelvin's Double Bridge. Derive the condition for balance.

10. A single phase potential transformer has a turn ratio of 3810/63. The nominal secondary voltage is 63 V and total equivalent resistance and leakage reactance referred to the secondary side are 2 Ω and 1Ω respectively. Calculate the ratio and phase angle errors when the transformer is supplying a burden of 100 + j200 Ω. State the assumptions made.

Section C

C. Attempt all the parts. (7.5x2=15)

11. Derive the expression for ratio and phase angle error in case of current transformer.

12. Discuss the following methods for high resistance measurement:

    a) Loss of charge method.

    b) Megohm Bridge.