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BIEE-007

B.Tech. IN ELECTRICAL ENGINEERING (BTELVI)

00901

Term-End Examination

December, 2013

BIEE-007 : ELECTRICAL MEASUREMENTS AND MEASURING INSTRUMENTS

Time : 3 Hours *Maximum Marks : 70*

Note : *Attempt* ***any seven*** *questions. All questions carry* ***equal*** *marks. Use of calculator is allowed.*

1. Explain the principle of moving iron instruments. Describe the constructional details of moving iron attraction type meter. Also derive the torque equation. **10**

2. What are the various types of sources of errors encountered in measurement ? Explain them in brief. **10**

3. (a) Draw the circuit diagram for measurement of power by two wattmeter method. Derive the expression of power factor of a balanced three phase load with the help of two wattmeter readings. **6**

(b) In two wattmeter method, if both wattmeter readings shows 10W, what is the power factor of the load ? **4**

4. Explain with the help of phasor diagram the principle of operation of a current transformer. What will happen if the secondary circuit of a current transformer is open-circuited while the primary carries current ? 10

5. Describe the construction and working of co-ordinate type of potentiometer. Explain the procedure of standardisation of the potentiometer. 10

6. How are resistances classified according to measurement ? Describe with the help of neat diagram the loss of charge method of determining the insulation resistance. 10

7. Explain with neat diagram the principle of Ballistic galvanometer. What are its application ? 10

8. Draw the block diagram of a CRO and explain the function of each block. How is frequency of a voltage signal measured with a CRO ? 10

9. Why are magnetic measurements more accurate than other types of measurements ? Explain with the help of neat diagram the principle and constructional features of a fluxmeter. 10

10. Write short notes on **any two** of the following : 5+5
    (a) Electronic Energymeter.
    (b) Murray loop Test.
    (c) Weston Frequency Meter.
