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BIEE-039

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DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)

Term-End Examination

December, 2012

BIEE-039 : ELECTRICAL MEASUREMENTS AND INSTRUMENTS

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt **five** questions in all. Q.No,**1** is **compulsory**.*

1. Indicate whether the following statements are **True** or **False.** **2x7=14**

(a) In indicating instruments, the springs are mainly used to hold the pivot in position.

(b) If an ammeter is connected, like a voltmeter, across the load circuit an inadmissably high current will flow through the meter and meter may burn out.

(c) In PMMC instrument the scale is logarithmic.

(d) The burden of a current transformer is expressed in volt-ampere rating.

(e) The major cause of creeping in an energy meter is excessive voltage across the potential coil.

(f) In a CRO the quantity to be measured is applied across Y plates.

(g) Megger is an instrument used for measurement of low resistance.

2. What are the different methods of obtaining the controlling torque in an indicating instrument ? Discuss briefly bringing out the advantages and disadvantages of each. **14**

3. Explain the construction and operating principle of moving iron instruments. What are the errors in these instruments and how can they be compensated ? **14**

4. What are the errors in energy meter and how are they compensated ? What is meant by phantom load? Explain its advantages in energy meter testing. **14**

5. Explain the principle of synchroscope with the help of a neat diagram. In a synchroscope, it is observed that the pointer is revolving once in every second. What is the frequency of incoming machine ? **14**

6. What do you understand by the 'ratio error' and 'phase angle error' of a potential transformer ? How are they reduced by suitable design features in case of potential transformer. **14**

7. With the help of a neat sketch describe the construction and working of various parts of a cathode ray tube. Explain how would you measure frequency using a CRO. **14**

8. Write short notes on ***any four*** of the following : **14**

(a) Digital Multimeter.

(b) Power Factor Meter

(c) Maximum Demand Indicator

(d) Power measurement by Two-wattmeter method.

(e) Errors in PMMC instruments.

(f) Types of measuring instruments.