

**DIPLOMA IN ELECTRICAL ENGINEERING  
(DELVI)**

**Term-End Examination**

00666

**June, 2016**

**BIEE-039 : ELECTRICAL MEASUREMENTS  
AND INSTRUMENTS**

*Time : 2 hours*

*Maximum Marks : 70*

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*Note : Attempt **five** questions in all. All questions carry equal marks. Missing data, if any, may be suitably assumed. Use of scientific calculator is allowed.*

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1. Explain the working principle of a moving iron indicating instrument. Show that this type of instrument can be used for both of DC and AC measurements. Also indicate the errors involved.

14

2. (a) Explain the construction and principle of operation of a dynamometer type wattmeter.
- (b) How can the dynamometer type wattmeter be made to read DC as well as AC?  $7+7=14$

3. Explain with a neat sketch the construction and principle of a dynamometer type single phase power factor meter. How would the accuracy of such an instrument be affected by frequency and waveform variation ? 14
4. Draw a synchroscope's internal circuit diagram and explain its working. Also, write its applications. 14
5. Explain the constructional details of C.T. (Current Transformer) and P.T. (Potential Transformer). 14
6. With the help of circuit and phasor diagrams and using usual notations, show that the total power in a 3-phase, 3-wire, star-connected balanced load can be measured with the help of only one wattmeter. 14
7. Write short notes on any **two** of the following : 2×7=14
- (a) C.R.O.
  - (b) Digital Multimeter
  - (c) Single Phase Energy Meter
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