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BIEE-039

DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)

Term-End Examination

00343

December, 2016

BIEE-039 : ELECTRICAL MEASUREMENTS AND INSTRUMENTS

Time : 2 hours *Maximum Marks : 70*

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

1. Explain the construction of a PMMC type meter with the help of a neat sketch. How are different forces produced ? Derive the torque equation. Enlist the advantages and disadvantages of PMMC instruments. *14*

2. Describe the constructional details and working of a single-phase electrodynamometer type of wattmeter. Derive the expression for deflection for a.c. operation if the instrument is spring controlled. *14*

3. Describe the construction and give the theory of operation of any type of frequency meter. Explain clearly whether the instrument performance will be affected or not by normal changes in the supply voltage. *14*

4. Describe the construction and working of rotating and static type phase sequence indicators. *14*

5. Derive the expressions for actual transformation (voltage), ratio and phase angle in case of a potential transformer. *14*

6. Draw the block diagram of CRO and explain its various controls. *14*

7. Show that the power in a 3-phase system is measured by the use of (a) only one wattmeter, and (b) two wattmeters. Indicate how the power factor is determined. *14*