

**B.Tech. - VIEP - ELECTRICAL ENGINEERING
(BTELVI)**

00353 Term-End Examination

June, 2018

**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 scientific calculator is allowed.

1. Explain the construction and working of permanent magnet moving coil (PMMC) instrument. Also derive the equation for deflecting torque. 10
2. Discuss the process of range of extension of various measuring instruments by using shunt and multipliers. Explain the various characteristics and qualities of measurements. 10

3. (a) Discuss the Blondel's theorem with a suitable example for the measurement of power in polyphase systems. 5
- (b) Explain the construction and working of single-phase electro-dynamometer type power factor meter. 5
4. (a) Explain the construction and working of a single-phase induction type energy meter. 5
- (b) Describe the creeping phenomena and its prevention mechanism. 5
5. (a) How can cable fault be localized by Murray and Varley loop methods? 5
- (b) A 230 W, single-phase energy metre has a constant load of 4 A passing through it for 5 hours at unity power factor. If the meter makes 1104 revolutions during this period, what is the meter constant? 5
6. (a) Discuss about the different types of tests for magnetic measurements. 5
- (b) Explain how flux density of a specimen is measured by using Ballistic test. 5
7. Describe the construction and principle of operation of CRO with neat sketch. 10

8. Discuss levels of illumination and process of measurement of illumination. 10

9. Write short notes on any *two* of the following : 2×5=10

(a) Kelvin's Double Bridge

(b) Potential Transformer

(c) Harmonic Analyzer
