

**D-180588**

**B. Tech. EXAMINATION, 2018**

Semester IV (CBS)

**ELECTRICAL MEASUREMENTS AND  
MEASURING INSTRUMENTS**

EE-402

[www.epaper.tk](http://www.epaper.tk)

*Time : 3 Hours*

*Maximum Marks : 60*

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*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

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**Note :** Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Section E is compulsory.

**Section A**

1. (a) Discuss the construction, working principle and characteristics of LVDT. Highlight its advantages, disadvantages and application. 8
- (b) Briefly describe various errors in instruments. 4

2. (a) Classify different kinds of transducers and describe the working principle, construction and applications of thermocouple transducers. 8
- (b) Briefly discuss static characteristics of instruments. 4

### Section B

3. (a) Discuss salient features of PMMC type instruments. 8
- (b) Give merits and demerits and applications of Electrostatic type instruments. 4
4. (a) Discuss construction and operating principle of Induction type wattmeter. Derive its torque equation. 8
- (b) How the creeping problem is taken care of in Energy meters ? 4

### Section C

5. (a) Classify various Frequency meters. Discuss briefly their operating principle and construction, advantages and disadvantages. 8
- (b) Derive torque equation of single-phase power factor meter. 4

6. (a) Briefly describe bridges used for low and high resistance measurement. Give their limitations and area of use. 8
- (b) Describe loss of charge method. 4

### Section D

7. (a) Discuss constructional feature, balance equations, advantages and disadvantages and applications of inductance capacitance bridge. 8
- (b) Why earthing is required in bridges ? Justify. 4
8. (a) Elaborate the salient features of Hay's bridge. 8
- (b) Why shielding is required in bridges ? Justify. 4

### Section E

9. (i) Give examples of various types of instruments.
- (ii) Differentiate between different damping methods.
- (iii) State working principle of strain gauges.
- (iv) What is Meggar ? Give its applications.
- (v) Give working principle of induction type Energy meter.

- (vi) State limitations and advantages of Moving iron instruments.
- (vii) What is meant by Absolute standards ?
- (viii) Differentiate between primary and secondary transducers. Give examples.
- (ix) Mention sources of errors in transducers.
- (x) Give applications and advantages of De Sauty's bridge.

**1.2×10=12**