

3E1485

Roll No. _____

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B. Tech III Sem. (Back) Exam. Jan. 2016

Elect. Engineering

3EE5(O) Electrical Measurements

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks: 24

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL

2. NIL

UNIT-I

- Q.1 (a) Define the working of moving coil with diagram. Give the application of instruments used for measuring of currents [8]
- (b) Discuss the available errors in wattmeter and their adjustments. [8]

OR

- Q.1 (a) Explain the testing and calibration of single phase energy meter by phantom loading. [8]
- (b) Briefly explain torque equation of electrodynamic instruments. [8]

UNIT-II

- Q.2 (a) Define Blondel's theorem for n phase, p wire system. [8]
- (b) Explain the construction and working of 3 phase induction type energy meter. [8]

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OR

- Q.2 Explain the construction and operation of current and potential transformers. Discuss the effect of variation of power factor on errors. [16]

UNIT-III

- Q.3 Discuss the construction, operation and standardization of DC potentiometers. Compare slide wire and crompton potentiometers. [16]

OR

- Q.3 How can we use potentiometers for resistance, voltmeter and ammeter calibrations. List down the applications of AC potentiometers. [16]

UNIT-IV

- Q.4 (a) Discuss the measurement of medium resistance using wheat stone bridge method. Give suitable diagrams and related mathematical expressions. [10]

- (b) Classify the resistance on the basis of range. [6]

OR

- Q.4 (a) Write a short note on measurement of earth resistance. [8]

- (b) Discuss Kelvin's double bridge method of resistance measurement [8]

UNIT-V

- Q.5 Write short note on the following with reference to AC bridges

- (a) sources and detectors [8]

- (b) Wagner earth device [8]

OR

- Q.5 (a) Explain the working, block diagram and utility of De Sauty bridge for capacitance measurement. [8]

- (b) What are the sources of error in bridge measurement? List down the precautions. [8].