



C14-EE-304

4246

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2016

DEEE—THIRD SEMESTER EXAMINATION

ELECTRICAL AND ELECTRONIC MEASURING  
INSTRUMENTS

Time : 3 hours ]

[ Total Marks : 80

**PART—A**

3×10=30

**Instructions** : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed **five** simple sentences.

1. List any six important electrical quantities to be measured by giving their units.
2. Define the following terms related to measuring instruments :
  - (a) Error
  - (b) Resolution
3. Write any three advantages of dynamometer-type instruments.
4. A moving-coil instrument has a resistance of 1.5 and gives full-scale deflection of 50 mA. Calculate the value of shunt required to measure the current up to 5 A.

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5. Write any one method for each to measure low, medium and high resistances.
6. Write any three differences between shunt and series ohmmeters.
7. List any six types of sensors.
8. What are (a) thermister and (b) thermo-couple?
9. Write the advantages of digital instruments.
10. What are the uses of multi-meter?

**PART—B**

10×5=50

**Instructions** : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) Explain any one method of obtaining damping torque in measuring instruments. 5  
 (b) Write a short note on tong tester (clamp meter). 5
12. Explain the construction and working of attraction-type moving-iron instrument with a neat sketch. 10
13. Explain the construction and working of a dynamometer-type instrument with a neat sketch. 10
14. Explain the construction and working of a one-phase induction type energy meter with a neat sketch. 10
15. (a) State the need for instrument transformers (CT and PT) and write their applications. 5  
 (b) State the precaution to be taken while using CT. 5

16. Explain the construction and working of potentiometer with a neat sketch. 10
17. Explain the measurement of temperature using thermistor in bridge circuit. 10
18. Explain the working of single-phase digital energy meter with a block diagram. 10

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