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C14–EE–304

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## 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.

**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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