C09–EE–305

3243

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2013

DEEE—THIRD SEMESTER EXAMINATION

ELECTRICAL AND ELECTRONIC MEASURING INSTRUMENTS

Time : 3 hours] [*Total Marks* : 80

PART—A

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. Classify the different measuring instruments.

2. Why is damping torque necessary in the measuring instruments?

3. What is creeping? How is it prevented?

4. What is meant by power factor? Write its formula.

5. Find the multiplying factor of a shunt of 200 resistance used with a galvanometer of 1000 resistance. Determine the value of the shunt resistance to give a multiplying factor of 50.

6. Classify the resistance from the point of view of measurements.

7. Define transducer and inverse transducer.

8. Classify the digital voltmeters.

9. Draw the block diagram of Ramp-type digital voltmeter.

10. Mention the specification of digital multimeter.

PART—B

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. Explain, with a neat diagram, the construction and working of a repulsion-type moving-iron instrument. 10

12. Describe the construction and working of MI-type frequency meter with a neat sketch. 10

13. *(a)* Compare between MC and MI instruments. 5

(b) Two wattmeters are used to measure power in a 3-phase balanced load. The wattmeter readings are 8·2 kW and 7·5 kW. Calculate the *(i)* total power, *(ii)* power factor and *(iii)* total reactive power. 5

14. With a neat schematic diagram, explain the constructional details and principle of working of Merz price maximum demand indicator. 10

15. Explain the working of a series-type ohm-meter with a neat sketch. 10

16. Define and explain thermistor and thermocouple. 10

17. Explain the construction and working of rectifier-type voltmeter with neat sketch. 10

18. *(a)* Explain the working of digital multimeter with neat sketch. 5

(b) Distinguish between gravity control and spring control in any five aspects. 5

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