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C14–EE–304

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2018

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. Classify different measuring instruments.

2. Why is damping torque necessary in measuring instruments?

3. Compare moving-coil instrument and moving-iron instruments in any six aspects.

4. A moving-coil instrument has a resistance of 8 and gives full-scale deflection of 30 mA. Show how it can be adopted to measure voltages up to 300 V.

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

6. State the working principle of basic potentiometer.

7. Define *(a)* active transducer and *(b)* passive transducer.

8. What is the purpose of sensor? Write any two applications.

9. List the basic components of digital instruments.

10. Compare between digital and analog instruments.

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)* Compare spring and gravity control instruments in any five aspects. 5

(b) Write a short note on uses of tong tester. 5

12. Explain the construction and working of permanent magnet moving-coil instrument with a neat sketch. 10

13. Explain the construction of a 3-phase two-element induction-type energy meter with a neat sketch. 10

14. *(a)* Draw the circuit diagram for measuring power with wattmeter in single-phase circuit in conjunction with instrument transformers (CT and PT). 5

(b) Write the advantages and disadvantages of dynamometer-type instruments. 5

15. *(a)* Draw a neat sketch of Weston synchroscope. 5

(b) Describe the method of extending the range of moving-coil ammeter with the help of a shunt. 5

16. Explain the construction and working of meggar with a neat sketch. 10

17. *(a)* State the working principle of strain gauge. 5

(b) Write about semiconductor sensors. 5

18. Explain the working of digital frequency meter with block diagram. 10

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