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Question Paper Code : 80376

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fourth Semester

Electrical and Electronics Engineering

EE 6404 — MEASUREMENTS AND INSTRUMENTATION

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define static sensitivity.
2. What is the significance of calibration?
3. Write any four types of analog ammeter used for instrumentation.
4. Define transformation ratio of an instrument transformer.
5. How are AC potentiometers classified? List them.
6. What are the sources of Electromagnetic interference?
7. What is the principle of operation of an ink-jet printer?
8. What are the functions of data logger?
9. What are the basic requirements of a transducer?
10. Define piezo electric effect.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the functional elements of an instrument with a neat block diagram. (10)
(ii) Explain the dynamic characteristics of an instrument in detail. (6)
Or
(b) A circuit was tuned for resonance by eight different students and the values of resonant frequency in KHZ were recorded as 532, 548, 543, 535, 546, 531, 543 and 536. Calculate (i) Arithmetic mean (ii) Deviation (iii) Average deviation (iv) Standard deviation.

12. (a) With circuit and phasor diagram, explain the working of single phase AC Energy meter.

Or

- (b) Write a short notes on :
- (i) Current Transformer. (8)
 - (ii) Weston frequency meter. (8)
13. (a) (i) Sketch the circuit of Wheatstone bridge, explain its operation and derive the equation for the unknown resistance. (10)
- (ii) Explain Grounding technique. (6)

Or

- (b) Write short notes on :
- (i) Electrostatic interference. (8)
 - (ii) Electromagnetic interference. (8)
14. (a) With neat figure explain the working principle of a digital CRO. What are its advantages over analog CRO?

Or

- (b) Explain the working of Dot matrix display. List its application.
15. (a) (i) Explain in detail, the working principle of piezoelectric transducers. (8)
- (ii) Describe the different criteria for selection of transducer for a particular application. (8)

Or

- (b) Explain Successive approximation type ADC with its characteristics.