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**Question Paper Code : 27217**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

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 resolution and precision.
2. What is meant by calibration of an instrument?
3. Define creeping in energy meter.
4. State any two applications of CT and of PT.
5. List the various detectors used for AC bridges.
6. What is called a volt-ratio box?
7. What is the principal of operation of an ink-jet printer?
8. What are the functions of data logger?
9. What is a transducer? Give an example.
10. What is meant by resolution for Analog Digital Converter?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the functional elements of an instrument with a neat block diagram. (10)
- (ii) In a test, temperature is measured 100 times with variations in apparatus and procedures. After applying the corrections, the results are :

Temp <sup>o</sup> C	397	398	399	400	401	402	403	404	405
Frequency of occurrence	1	3	12	23	37	16	4	2	2

Calculate.

- (1) Arithmetic mean
- (2) Mean deviation
- (3) Standard deviation. (6)

Or

- (b) (i) Explain the static characteristics of an instrument. (10)
- (ii) Explain in detail systematic error. (6)

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) Draw the diagram of Co-ordinate type A.C. potentiometer and explain its working principle.

Or

- (b) Explain about
  - (i) Electrostatic and electromagnetic interference.
  - (ii) Need for Grounding for measuring instruments.

14. (a) With neat diagram, explain the basic components and working principle of magnetic tape recorders.

Or

- (b) With neat figure explain the working principle of a digital CRO. What are its advantages over analog CRO?

15. (a) Explain in detail about construction and working of LVDT.

Or

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