Reg. No. : | | | | | | | | | | |

Question Paper Code: 31435

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

Fourth Semester

Electrical and Electronics Engineering

01UEE405 - ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define the terms precision and sensitivity.
2. Give the international standards of instruments.
3. Why the ordinary watt meters are not suitable for low power factor circuits?
4. Give the comparison between analog and digital Phase meter.
5. Define co- ordinate type AC potentiometer? Give its expression.
6. What are the sources of electromagnetic interference?
7. List out the merits and demerits of digital storage oscilloscope?
8. What is the principle of dot matrix display?
9. Differentiate sensor from transducer.
10. Mention the need of ADC and DAC in digital data acquisition system.

PART - B (5 x 16 = 80 Marks)

11. (a) Describe all the elements of a generalized measurement system with an example of Bourdon tube pressure gauge. (16)

Or

(b) (i) Explain various types of errors in an instrument. (8)

(ii) Explain different calibration methodologies. (8)

12. (a) Describe the construction and working principle of single phase induction type energy meter. Write a short note on any two adjustments required in energy meters. (16)

Or

(b) Write short notes on:

(i) Use of current transformer for current and power measurement. (8)

(ii) Working of Weston frequency meter. (8)

13. (a) Explain how the inductance is measured in terms of known capacitance using Maxwell's bridge. Derive the conditions for balance. (16)

Or

(b) Explain the grounding techniques in detail to reduce the ground loop interference signal. (16)

14. (a) (i) Draw a neat block diagram of X-Y recorder and describe its working. (8)

(ii) Explain the principle and working of CRT display with neat diagram. (8)

Or

(b) (i) Describe the LED display devices. (8)

(ii) Explain the data loggers in Detail. (8)

15. (a) (i) What is called Piezo electric transducer? Explain its working with a suitable diagram. (8)

(ii) Explain how to measure pressure using capacitive type transducer. (8)

Or

(b) What are the performance parameters of analog to digital converter? Explain any two basic A/D conversion techniques in detail. (16)

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