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

Question Paper Code: 34305

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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. How are the absolute and relative errors expressed mathematically?
2. Define calibration.
3. An energy meter is designed to make 100 revolutions of disc for one unit of energy. Calculate the number of revolutions made by it when connected to load carrying 40 *A* at 230*V* and 0.4 power factor for an hour.
4. Define burden of an Instrument transformer.
5. What is meant by Transformer Ratio Bridge?
6. What is meant by transformer ratio bridge?
7. What is meant by drop out?
8. What are all the main components of magnetic tape recorder?
9. Brief the need of sample and hold circuit in analog to digital converter.
10. What are optical detectors?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) What are the basic blocks of a generalized instrumentation system? Draw the various blocks and explain their functions (8)

    (ii) Enumerate the main dynamic characteristics of measuring instruments and explain them. (8)

Or

(b) Discuss the different types of standards of measurement. (16)

12. (a) With circuit and phasor diagram explain the measurement of power using instrument transformer. (16)

Or

(b) Explain the operating principle of instrument transformer. (16)

13. (a) (i) Explain in detail about laboratory type DC potentiometer. (8)

(ii) Explain how inductance is measured by using Maxwell's bridge. (8)

Or

(b) With fundamentals distinguish between DC and AC potentiometers and give any two specific applications for each. (16)

14. (a) Describe the direct and frequency modulation magnetic tape recording types. Give its merits and demerits. (16)

Or

(b) Write short notes on

(i) Dynamic scattering type liquid crystal display (8)

(ii) Dot matrix display (8)

15. (a) (i) Explain the resistive transducer with respective to potentiometer. (4)

(ii) Explain the capacitive transducer. (6)

(iii) Describe the piezoelectric transducer and give the formula for coupling coefficient. (6)

Or

(b) Explain the principle of operation of piezo electric transducer. (16)

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