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

Question Paper Code: 33055

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Third Semester

Electronics and Instrumentation Engineering

01UEI305 - ELECTRICAL MEASUREMENTS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Write basic principle of rectifier type instrument.
2. Explain the terms resolution and sensitivity.
3. Write the methods for calibrating the wattmeter.
4. What is phantom loading?
5. What is the use of a potentiometer?
6. List the various type of errors in CT and PT.
7. Write the limitations of Wheatstone's bridge.
8. What is ground fault?
9. Write the sources and detectors used in AC Bridge.
10. State two applications of vibration galvanometer.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the working principle of attraction type and repulsion type moving iron instruments with necessary diagrams. (16)

Or

(b) Illustrate with a neat diagram the principle of operation, construction and working of PMMC instrument. (16)

12. (a) Explain in detail about sources of errors in Electrodynamometer type wattmeter and also explain the various compensation techniques used. (16)

Or

(b) Describe basic principle, construction and working of induction type energy meter and also derive the torque equation for the same. (16)

13. (a) Explain in detail about the laboratory grade DC potentiometer. (16)

Or

(b) Explain the operating principle of current transformer with a neat diagram. Mention the various causes of error and state the methods of reducing the errors. (16)

14. (a) Sketch the circuit of Kelvin double bridge, explain its operation and derive the equation for the unknown resistance. (16)

Or

(b) Explain any two types of earth resistance measurement with neat diagram. (16)

15. (a) Sketch the circuit diagram of a Maxwell inductance bridge. Derive the equations for resistive and inductive components of the measured inductor. (16)

Or

(b) Derive an expression for balance condition in Anderson's bridge. (16)

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