

C 15645

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Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2011

EE 09 406—ELECTRICAL MEASUREMENTS AND INSTRUMENTATION SYSTEM

(2009 admissions)

Time : Three Hours

Maximum : 70 Marks



Part A

Answer all questions.

Each question carries 2 marks.

1. Bring out the relative advantages of gravity and spring control in indicating instruments.
2. State the need for shading bands in an energy meter.
3. State the differences between balancing of d.c. bridges and a.c. bridges.
4. Define a Transducer. What is an active transducer ?
5. List the different types of displays available.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

Each question carries 5 marks.

6. Obtain the expression for deflection for a spring controlled moving iron instrument.
7. Briefly discuss about the common errors in a electro-dynamometer wattmeter.
8. Discuss the process of measuring insulation resistance by direct deflection method.
9. Discuss about the criteria used for selection of transducers and its dynamic characteristics.
10. Draw the block diagram of the general telemetry system and state the function of each block.
11. Briefly enumerate on the mechanism used in pen driving system.

(4 × 5 = 20 marks)

Part C

Answer all the questions.

Each question carries 10 marks.

12. Draw and explain the construction and working of PMMC instrument.

Or

13. Derive the expression for ratio and phase angle errors for current transformer.

Turn over

14. Explain the construction and principle of working of a single-phase induction type energy meter.

Or

15. Draw the circuit diagram, phasor diagram and derive the equations, under balance, for Maxwell's and Schering bridges.

16. With the aid of necessary diagrams, discuss the working of LVDT.

Or

17. Draw the circuit diagram and obtain the relation between Input and output for an instrumentation amplifier.

18. Explain the working of magnetic recorders and galvanometric recorders.

Or

19. Draw the block diagram of digital storage oscilloscope and briefly discuss about each block.

(4 × 10 = 40 marks)

(5 × 2 = 10 marks)

Part B

Answer any four questions.
Each question carries 5 marks.

6. Obtain the expression for deflection for a spring controlled moving iron instrument.
7. Briefly discuss about the common errors in a electrodynamic wattmeter.
8. Discuss the process of measuring insulation resistance by direct deflection method.
9. Discuss about the criteria used for selection of transducers and its dynamic characteristics.
10. Draw the block diagram of the general telemetry system and state the function of each block.
11. Briefly enumerate on the mechanism used in pen driving system.

(4 × 5 = 20 marks)

Part C

Answer all the questions.
Each question carries 10 marks.

12. Draw and explain the construction and working of PMMC instrument.
- Or
13. Derive the expression for ratio and phase angle errors for current transformer.