

C 26885

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Name.....

Reg. No.....

**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
MAY 2012**

EE 09 406/PTEE 09 405—ELECTRICAL MEASUREMENTS AND INSTRUMENTATION
SYSTEM

(2009 admissions)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. What is hysteresis error ? In what type of instrument is this present ?
2. How to identify the correct frequency in a vibrating reed frequency meter ?
3. Why an Electrodynamometer instrument is referred to as 'transfer instrument' ?
4. Mention any four factors influencing the selection of transducers for a particular application.
5. List the different types of recorders.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. A current of $I = 10 \sin \omega t$ for ($0 < \omega t < \pi$) is passed through the Moving coil and Moving iron ammeter. Find the reading in both the meters.
7. Briefly discuss about various compensations provided in single phase energy meter.
8. Discuss about the earth resistance measurement.
9. What is gauge factor ? Explain the working of unbounded strain gauge.
10. Explain the working mechanism of pen driving system.

(4 × 5 = 20 marks)

Part C

Answer all questions.

11. Explain the construction Electrodynamometer wattmeter. Derive the expression for deflection.
- Or
12. Draw the phasor diagram for CT and PT. Derive the expression for Ratio and phase expression for Ratio and phase angle errors for Current Transformer.
 13. Explain the principle of working of a single phase induction type energy meter. Drive the expression relating number of revolutions and energy.

Or

14. With neat diagram, discuss the construction and working of flux meter.

Turn over

15. Discuss a scheme to measure pressure and torque.

Or

16. Draw the block diagram and explain the digital measurement of phase angle.

17. Explain the working of digital recorders.

Or

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

(4 × 10 = 40 marks)

Maximum : 70 Marks

Time : Three Hours

Part A

Answer all questions

1. What is hysteresis error? In what type of instrument is this present?
2. How to identify the correct frequency in a vibrating reed frequency?
3. Why an Electrodynamic motor instrument is referred to as 'transfer instrument'?
4. Mention any four factors which affect the accuracy of transformers for a given size application.
5. List the different types of recorders.

(5 × 2 = 10 marks)

Part B

6. A current of $I = 10$ A is passed through the moving coil and moving iron instrument. Find the reading in both the meters.
7. Briefly discuss about various compensations provided in single phase energy meter.
8. Discuss about the earth resistance measurement.
9. What is gauge factor? Explain the working of unbonded strain gauge.
10. Explain the working mechanism of pen driving system.

(4 × 5 = 20 marks)

Part C

Answer all questions

11. Explain the construction Electrodynamic wattmeter. Derive the expression for deflection.
12. Draw the phasor diagram for CT and PT. Derive the expression for Ratio and phase expression for Ratio and phase angle errors for Current Transformer.
13. Explain the principle of working of a single phase induction type energy meter. Derive the expression relating number of revolutions and energy.

Or

14. With neat diagram, discuss the construction and working of flux meter.

Turn over