

Code: 9A04405

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B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013

**ELECTRONIC MEASUREMENTS**

(Common to EIE & E.Con.E)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 Explain the performance characteristics of measurements.
- 2 What are the standards of measurement? Explain international standards.
- 3 Discuss the difference between direct calibration and indirect calibration.
- 4 Explain the operation of a.c voltmeter using:
  - (a) Full wave rectifier.
  - (b) Half wave rectifier.
- 5 Why Kelvin's bridge is preferred? Derive the bridge balance equation for Kelvin's double bridge.
- 6 Explain the operation hetero-dyne wave analyzer.
- 7 With a neat block diagram, explain the function of each block of a general purpose oscilloscope.
- 8 Explain real-time spectrum analyzer and its applications.

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**ELECTRONIC MEASUREMENTS**

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Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 What are the different types of measurement errors occurring in electronic measurements?
- 2 Discuss the standards of:
  - (a) Voltage.
  - (b) Current.
- 3 How a voltmeter is calibrated? Discuss with an example.
- 4 What is a thermocouple? Explain its operation with neat diagram.
- 5 Derive the balance equation for Maxwell's bridge.
- 6 Explain frequency synthesizer, discuss its applications.
- 7 Explain CRT with a neat diagram.
- 8 Explain harmonic mixing in a spectrum analyzer.

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**3**

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- 1        What is the need of calibration experiment and how the results are evaluated?
- 2        How the statistical analysis of data measurement is done?
- 3        Explain time and frequency standards.
- 4        How the range of voltmeters and ammeters is extended? Explain.
- 5        What is wheat stone bridge? Derive its balance equation.
- 6        Discuss the errors that are associated with frequency counters.
- 7        (a) Explain sampling oscilloscope.  
          (b) Explain storage oscilloscope.
- 8        What is a logic analyzer? Discuss in detail.

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**ELECTRONIC MEASUREMENTS**

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Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 Explain the standards of:
  - (a) Resistance.
  - (b) Capacitance.
- 2 Explain the terms in measurement:
  - (a) Reliability.
  - (b) Traceability.
- 3 With a neat diagram, explain a digital voltmeter.
- 4 What are the forms and methods of measurements?
- 5
  - (a) Discuss all the types of bridges in detail.
  - (b) Explain Q-meter.
- 6 What is a wave analyzer? Explain frequency selective wave analyzer.
- 7
  - (a) Explain sweep modes of time-base generator in CRO.
  - (b) What are the standard specifications of CRO?
- 8
  - (a) What are recorders, Discuss its classification.
  - (b) Explain X-Y plotter.

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