

Code No: 09A51004

R09

SET-1

B. Tech III Year I Semester Examinations, December-2011
PRINCIPLES OF ELECTRONIC INSTRUMENTATION
(ELECTRONICS AND INSTRUMENTATION ENGINEERING)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) How measurement of Loop gain is carried out in sine wave testing? Explain.
- b) Explain about Tune Domain Reflectometry. [15]
- 2.a) Explain about Frequency standards.
- b) Draw the block schematic of a Frequency measuring Instrument and explain its functions. [15]
- 3.a) With the help of a block schematic, explain the principle and working of any Non- Integrating type DVM.
- b) Explain about different types of Direct – current probes. [15]
- 4.a) Explain the principle and working of Inductance Meters.
- b) Draw the circuit for wheat stone bridge and derive the expression for R_x at balance. [15]
- 5.a) Explain about R F meter methods and precision measurements for passive components. [15]
- 6.a) Give the schematic of a CRT and derive the expression for Electrostatic Deflection sensitivity SE.
- b) Give the specifications of a CRO. [15]
- 7.a) Explain about performance characteristics of Transmitters and Receivers.
- b) Explain about different types of solid – state Micro wave sources. [15]
8. Write Notes on any Two of the following
 - a) Servo Recorders
 - b) Magnetic Recording Techniques
 - c) Micro wave Transistor oscillators. [15]

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Time: 3 hours

Max. Marks: 75

Answer any five questions
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- 1.a) Explain about automatic Network Analyzers.
b) What is Time domain Reflectometry? Explain. [15]
- 2.a) Explain about standard Frequency and Tune signal broadcast .
b) Draw the circuit for Direct – current Amplifier with Automatic Reset and explain its working. [15]
- 3.a) Draw the circuit for differential amplifier and explain its operation.
b) Draw schematic of successive approximation type DVM and explain its working. [15]
- 4.a) Explain about complex impedance meters.
b) What are the methods of measurement of High – valued resistance? [15]
5. Draw a Radio frequency bridge and explain its working. What are the problems Associated with RF bridges? Explain [15]
- 6.a) Derive the expression for Electro magnetic deflection sensitivity SM of a CRT:
b) Explain the principle and working of a sampling oscilloscope. [15]
- 7.a) Draw the block schematic of a servo recorder and explain the principle of operation.
b) What is the principle of Magnetic Tape Recording? Explain. [15]
- 8 Write Notes on any Two. [15]
 - a) Galvanometric Recorders
 - b) Microwave Transistor oscillators
 - c) Measurements on Receiving system. [15]

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SET-3

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Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Explain how measurement of Delay Distortion is carried out for sine wave testing?
b) Explain about square wave testing of a linear system. [15]
- 2.a) Explain about Tune and Frequency standards.
b) With the help of a schematic explain about Frequency Synthesizers. [15]
- 3.a) Draw the schematic and explain about sampling voltmeters.
b) Draw the schematic of stair case Ramp type DVM and explain its principle and Working. [15]
- 4.a) Draw the block diagram for a capacitance Meter and explain its working.
b) Explain how high valued Resistance can be measured. [15]
5. How are Low- Frequency Bridges classified? Explain about resonance methods for the determination of passive component values. [15]
- 6.a) Draw the schematic of a general purpose oscilloscope and explain its working.
b) Give the characteristics of Display screen used in CROs. [15]
- 7.a) Write the help of neat sketches explain about Galvanometric Recorders.
b) Explain about Pen Drive Mechanisms for Recorders. [15]
8. Write Notes on any TWO
a) Measurements on transmitting system.
b) Solid – state Microwave oscillators
c) Magnetic Tape Recorders. [15]

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SET-4

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Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Explain how the measurement of Gain phase of a sine wave are measured?
b) What are the precautions to be taken in sine wave testing? [15]
- 2.a) Explain about Frequency and Tune standard broad casts.
b) Draw the schematic of a Frequency synthesizer and explain its working. [15]
- 3.a) Draw the circuit for chopper amplifier and explain its working.
b) With the help of a schematic, explain the working of Root mean square responding detection. [15]
- 4.a) Explain the principle and working of complex Impedance Meters.
b) Explain how Low – valued and High – valued Resistances can be measured. [15]
- 5.a) Draw a T –Network and deduce the expression for the unknown at balance.
b) Draw a bridge circuit with inductively coupled Ratio arms and derive the expression for unknown element. [15]
- 6.a) Draw the block schematic of a sampling oscilloscope and explain the principle.
b) What are the different types of phosphor materials used in CROS? Explain.[15]
7. Explain about Magnetic Tape Recorders. [15]
8. Write Notes on any Two: [15]
 - a) Galvanometric Recorders
 - b) Microwave Amplifiers
 - c) Microwave Transistor oscillation. [15]

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