

No. of Printed Pages : 4
Roll No.

221021

**2nd Sem / ECE, ECE
(For Speech and Hearing Impaired)**

Subject : Electronic Instruments and Measurement

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 What is the smallest change in applied input that will indicate a detectable change in output of an instrument? (CO1)

- a) Accuracy b) Precision
- c) Sensitivity d) Resolution

Q.2 The focusing method used in CRO is (CO3)

- a) mechanical focusing
- b) thermal focusing
- c) electrostatic focusing
- d) electromagnetic focusing

Q.3 Inductance is measured by which one of the following? (CO4)

- a) Wheat stone bridge b) Schering bridge
- c) De Sauty's bridge d) Hay's bridge

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Q.4 The principle of Q-meter is based on (CO4)

- a) parallel resonance b) series resonance
- c) both a and b d) none of the above

Q.5 Lissajous patterns can be used to measure (CO3)

- a) frequency b) phase difference
- c) both a and b d) intensity of light

Q.6 The main specification of a CRO is its (CO3)

- a) Weight b) power supply
- c) dimensions d) bandwidth

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Q-Factor (Quality Factor) of a coil = _____ (give the formula) (CO4)

Q.8 Gross errors occur due to human mistakes. (True/False) (CO1)

Q.9 The input resistance of an ideal ammeter is infinite. (True/False) (CO2)

Q.10 Sensitivity of a basic meter is measured in _____ (CO1)

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Q.11 The loading effect is a desirable feature in measuring instruments. (True/False) (CO1)

Q.12 Write the full form of VOM. (CO2)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 How a Logic Pulser is useful in digital circuits? (CO1)

Q.14 Why precision is no guarantee to accuracy? (CO1)

Q.15 What is the meaning of calibration? (CO1)

Q.16 Define measurand. (CO1)

Q.17 Write four applications of CRO (CO3)

Q.18 Describe the working of a Function generator with the help of block diagram. (CO4)

Q.19 How the range of an ammeter is extended? (CO2)

Q.20 Explain the main constituents of a low frequency generator? (CO4)

Q.21 Explain the importance of standards in measurement. (CO1)

Q.22 Elaborate the need of ADC and DAC in a DSO. (CO3)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain the construction and working of attraction type of Moving Iron Instruments. (CO2)

Q.24 Explain the circuit and working of Maxwell's induction bridge and its applications. (CO4)

Q.25 a) Compare analog and digital instruments. (CO5)
b) Explain the working of a Digital Multimeter with the help of a block diagram

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 A simple instrument used to detect logic state of a node in digital circuit is known as _____.(CO5)
a) Logic pulser b) Logic analyser
c) Logic probe d) Logic comparator
- Q.2 Random errors in a measuring system are due to _____(CO1)
a) Environmental changes
b) Use of uncalibrated instrument
c) Poor cabling Practices
d) Unpredictable effects
- Q.3 Inductance is measured by which one of the following? (CO4)
a) Wheat stone bridge b) Schering bridge
c) De Sauty's bridge d) Maxwell's bridge

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- Q.4 The wave shape generated by time base circuit of a CRO is _____(CO3)
a) Triangular wave b) Square wave
c) Saw tooth wave d) Sine wave
- Q.5 DSO digitises the _____ form of input signal. (CO3)
a) Digital b) Analog
c) Saw tooth d) None of the above
- Q.6 A moving iron instrument can be used for
a) AC only b) DC only
c) Both AC and DC d) None of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 The band width of a CPO is measured in _____. (CO3)
- Q.8 List any two advantages of Digital multimeter. (CO5)
- Q.9 The input resistance of an ideal voltmeter is infinite. (True/False) (CO2)
- Q.10 Errors may occur due to environmental conditions surrounding the instruments. (True/False) (CO1)
- Q.11 RF stands for _____. (CO4)
- Q.12 Name the instrument used to generate Sine waves with variable frequency and amplitude _____. (CO4)

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SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Differentiate between precision and accuracy. (CO1)
- Q.14 Describe De Sauty's bridge. (CO4)
- Q.15 Describe Standard. (CO1)
- Q.16 Define sensitivity. (CO1)
- Q.17 What is the effect of higher frequencies on measurement using multimeter. (CO2)
- Q.18 Explain duty cycle of a pulse signal. (CO4)
- Q.19 Elaborate the parts of a CRT with the aid of a diagram. (CO3)
- Q.20 What is loading effect? (CO2)
- Q.21 Compare analog and digital instruments. (CO5)
- Q.22 Explain the working principle of Q meter. (CO4)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Draw the circuit diagram of Wheat stone bridge and explain its working. (CO5)
- Q.24 Explain the working principle and construction of PMMC type of instrument. (CO2)
- Q.25 Explain the construction and working of a Function generator with the help of block diagram in detail. (CO4)

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Resistances can be measured with the help of

- a) Wattmeter b) Voltmeter
- c) Ammeter d) ohmmeter

Q.2 A moving iron instrument can be used for

- a) D.C only b) A.C only
- c) D.C. and AC both d) none of the above

Q.3 Sensitivity of a basic meter is measured in

- a) ohm meter b) Ohm/ Volt.
- c) ampere d) Volt/ ampere

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Q.4 A simple instrument used to detect logic state of a node in digital circuit is known as _____

- a) logic pulser b) logic analyser
- c) logic probe d) logic comparator

Q.5 The principle of Q-meter is based on

- a) parallel resonance b) series resonance
- c) both a and b d) none of the above

Q.6 Inductance is measured by which one of the following?

- a) Wheat stone bridge
- b) Schering bridge
- c) De Sauty's bridge
- d) Maxwell's bridge

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 The scale of moving iron instrument is uniform . (True/False)

Q.8 Ammeter is always connected in _____

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Q.9 In CRO, Vertical deflection plates are kept_____

Q.10 De Sauty's bridge is used for the measurement of_____

Q.11 Name any one absolute instrument.

Q.12 What is the full form of VOM meter?

SECTION-C

Note:Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Why precision is no guarantee to accuracy?

Q.14 What are different standards?

Q.15 Why a bridge circuit has high accuracy?

Q.16 Describe the working of a DSO.

Q.17 Explain the construction of a CRT with the help of diagram.

Q.18 What is the use of a Logic Pulser?

Q.19 Explain the working of Hay's bridge.

Q.20 What do you mean by the term Calibration?

Q.21 Draw the block diagram of a Digital Multimeter.

Q.22 Explain the term loading effect in measurement.

SECTION-D

Note:Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain the construction and working principle of PMMC type of instruments.

Q.24 Explain the construction and working of a function generator with the help of block diagram in detail.

Q.25 Draw the circuit diagram of Wheat stone bridge and explain how unknown resistance can be measured using it.

Q.24 Explain the construction and working of a function generator with the help of block diagram in detail.

Q.25 Explain block diagram of Q-Meter and Write working principle of it.

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Power can be measured with the help of

- | | |
|--------------|--------------|
| a) Wattmeter | b) Voltmeter |
| c) Ammeter | d) Ohmmeter |

Q.2 What is the smallest change in applied input that will indicate a detectable change in output of an instrument?

- | | |
|----------------|---------------|
| a) Accuracy | b) Precision |
| c) Sensitivity | d) Resolution |

Q.3 Sensitivity of a basic meter is measured in

- | | |
|--------------|----------------|
| a) Ohm meter | b) Ohm/Volt. |
| c) Ampere | d) Volt/Ampere |

Q.4 A simple instrument used to detect logic state of a node in digital circuit is known as _____.

- a) Logic Pulser b) Logic analyser
- c) Logic probe d) Logic Comparator

Q.5 The principle of Q-Meter is based on

- a) Parallel resonance b) Series resonance
- c) Both A & B d) None of the above

Q.6 A moving iron instrument can be used for

- a) AC only b) DC only
- c) Both AC & DC d) None of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 The scale of moving iron instrument is uniform. (True/False)

Q.8 Ammeter is always connected in _____.

Q.9 Write the full form of CRO is _____.

Q.10 Hey's bridge is used for the measurement of _____.

Q.11 Write the unit of frequency.

Q.12 Write the full form of DSO _____.

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SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Write any four differences between analog and digital instruments.

Q.14 What are different standards?

Q.15 Write any four difference between AC bridge & DC bridge.

Q.16 What is the use of Logic Pulser?

Q.17 Explain the construction of CRT with the help of diagram.

Q.18 Explain the working of De-Sauty's bridge.

Q.19 Explain the working of a DSO.

Q.20 What do you mean by the term Calibration?

Q.21 Draw the block diagram of a Digital Multimeter.

Q.22 What is principle of VOM meter.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain block diagram description of CRO and write its application.

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 _____ is the ratio of change in magnitude of output signal to the change in input signal.

- a) Resolution b) Accuracy
- c) Sensitivity d) Quality

Q.2 Full form of DSO is

- a) Direct Signal Operator
- b) Digital System Operator
- c) Digital Signal Oscillator
- d) Digital Storage Oscilloscope

Q.3 Logic Pulser is used to insert

- a) Logic pulse in analog circuit
- b) Logic pulse in digital circuit
- c) Logic pulse in analog circuit and digital circuit
- d) All the above

Q.4 In the simplest form, an AC bridge consists of _____

- a) arms, source and a detector
- b) arms and source
- c) source and detector
- d) arms and detector

Q.5 Multimeter is used to measure _____ quantity.

- a) Single b) Double
- c) Multiple d) Tripple

Q.6 Measurement methods are of _____ types.

- a) 4 b) 5
- c) 2 d) 1

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 What is measurement.
- Q.8 Write full form of PMMC.
- Q.9 Name the deflection plate used in CRT.
- Q.10 Which bridge is used for the measurement of DC only.
- Q.11 What is logic probe.
- Q.12 Define Accuracy .

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Write any four difference between Accuracy and Precision.
- Q.14 Explain working principle of Pulse Generator.
- Q.15 Explain attraction type moving iron instrument.
- Q.16 Explain CRT with diagram.
- Q.17 Explain Wheat stone Bridge.

Q.18 Write four advantages of Digital instrument over Analog instrument.

Q.19 What is standard and explain its different types.

Q.20 Explain any four front panel controls of CRO.

Q.21 Draw and explain the block diagram of Q meter.

Q.22 Explain limiting error with example.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Draw and explain block diagram of CRO in detail.

Q.24 Explain construction and working principle of Permanent Magnet Moving Coil (PMMC) instrument.

Q.25 Explain working principle of Q meter with diagram.

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