Scheme G

Sample Test Paper - I

Course Name : Diploma in Electronics and Video Engineering

Course Code : EV

Semester : Fourth **17435**

Subject Title : Electronic Instrumentation

Marks : 25 **Time: 1 hour**

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q1. Attempt any THREE **9 Marks**

a. Give the classification of instrument

b. Differentiate between accuracy and precision (On the basis of any three factors).

c. Draw full wave rectifier type AC voltmeter.

d. State any six static characteristics.

e. What is Aryton shunt? State its advantage.

Q2. Attempt any TWO **8 Marks**

a. Draw the neat diagram of PMMC instrument and explain in brief.

b. Draw the block diagram of digital frequency meter and state the function of any two blocks.

c. Define speed of response and fidelity of instrument.

Q3. Attempt any TWO **8 Marks**

a. A DC voltmeter uses 100 μA meter movement and internal resistance of 150 Ω. Calculate the value of multiplier on the 50 volt range.

b. Draw the block diagram of DMM and state the function of each block.

c. State the types of errors. Explain any one.

Scheme G

Sample Test Paper - II

Course Name : Diploma in Electronics and Video Engineering

Course Code : EV

Semester : Fourth **17435**

Subject Title : Electronic Instrumentation

Marks : 25 **Time:1 hour**

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q1. Attempt any THREE **9 Marks**

a. List any three applications of digital storage oscilloscope.

b. Draw three wire RTD circuit.

c. State the need of signal generators. State its types.

d. State the principle of Piezo-electric transducer. List its two applications.

e. Give the method of voltage measurement using CRO.

Q2. Attempt any TWO **8 Marks**

a. Draw the block diagram of Instrumentation System. State function of each block.

b. Draw electromagnetic flow meter and give its working.

c. State the need of spectrum analyzer. How it is used to determine harmonic contents?

Q3. Attempt any TWO **8 Marks**

a. Draw the block diagram of DSO and give the function of each block.

b. Compare dual trace and single trace CRO on the basis of any four factors.

c. State any two advantages and two disadvantages of thermistors.

Scheme G

Sample Question Paper

Course Name : Diploma in Electronics and Video Engineering

Course Code : EV

Semester : Fourth **17435**

Subject Title : Electronic Instrumentation

Marks : 100 **Time:3 hour**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q.1 A) Attempt any SIX **12 Marks**

a. Write the classification of Electrical Transducers.

b. Differentiate between Accuracy and Precision.
(On the basis of any Two factors).

c. State four applications of CRO.

d. List out types of Flow meters.

e. State the function of Delay line in CRO and give its types.

f. State the need of Wave analyzer. Also give the types of wave analyzer.

g. List the transducer selection criteria.

h. Draw the schematic diagram of instrumentation system.

B) Attempt any TWO **8 Marks**

a. What is the working principle of Piezo-electric transducer? State its applications

b. The current through resistor is 2.5 A. But the measurement yields values of 2.45 A. Calculate the absolute error and % error of the measurement.

c. Draw connection diagrams for ammeter and voltmeter in electronic circuits?

Q.2 Attempt any FOUR **16 Marks**

a. Draw the block diagram of horizontal deflection system and sketch the waveform at each block.
b. Write the working principle of RTD. How the temperatures change is measured using RTD?
c. Draw neat diagram of two-wire RTD circuit.
d. Calculate the value for series resistance to extend the 0 -200 volt range of a 20000 Ω/V meter to a 2000V. What will be the Power dissipation of this resistor?
e. Draw the block diagram of pulse generator.
f. With neat schematic diagram illustrate the working principle of Digital Frequency Meter.

Q.3 Attempt any FOUR **16 Marks**

a. What are the different types of voltmeters? List any four specifications.
b. Draw the neat block diagram of harmonic distortion analyzer and state the function of each block.
c. What are the different parameters that can be measured using DMM?
d. Give the method of frequency measurement using Lissagous pattern.
e. Draw the schematic diagram of Electromagnetic flow meter and describe its working
f. Draw block schematic and write the functioning of dual trace CRO.

Q.4Attempt any FOUR **16 Marks**

a. Define Signal generator and state its need.
b. Give comparison between wave analyzer and harmonic distortion analyzer. (On the basis of any four factors).
c. Write the working operation of CRT in a single trace CRO with neat diagram.
d. List four applications of video pattern generator.
e. Differentiate between Active and Passive Transducers. (On the basis of any two factors).

f. Describe the working principle capacitive transducer? Explain its working with suitable diagram.

Q 5. Attempt any FOUR **16 Marks**

a. Differentiate between time difference and Doppler type ultrasonic flow meter. (On the basis of any four factors).
b. What are the main function blocks of Logic analyzer? Give brief function of each block.
c. Draw the block schematic of RF type signal generator and give its working.
d. What is the working principle of thermocouple? Give its classification based on material used and temperature range.
e. State the advantages of thermistor over RTD.
f. Illustrate the working of LVDT as a displacement transducer with the help of diagram.

Q.6 Attempt any FOUR **16 Marks**

a. Differentiate Analog with Digital Instruments.(On the basis of any four factors)
b. What is LCR meter? Draw its block diagram
c. Draw the neat block diagram of DSO. List its applications.
d. Define Error. List the sources of Error in measurement system.
e. Draw the circuit of basic DC ammeter. Derive the expression for shunt resistance.
f. The expected value of voltage across the resistor is 50 volt. However the measurement gives a value of 49 volt. Calculate relative accuracy and % accuracy.