Experiment No: - 3

Title:- DC VOLTAGE & CURRENT MEASUREMENT.

Aim:-

- i) To measure the voltage in a given circuit using analog voltmeter, digital voltmeter, and storage oscilloscope using DC Supply. To compare the voltage measurement.
- ii) To measure the current in a given circuit using analog ammeter, digital ammeter, and d storage oscilloscope using DC Supply. To compare the current measurement.

Apparatus:-

SI. No.	Name	Specification	
1	Voltmeter	0.1/3/10/20:	Quantit
2	Ammeter	0-1/3/10/30; moving coil	
3	NI ELVIS :	0-0.1/0.3/1/3A; moving coil	
	1. Digital Multimeter		
	2. Digital storage		No. of the last of the
	2. Digital storage	2 channel, 100MHz	AND RESIDENCE
	3. Regulated DC Power	0-12V, 2A; (-15V-0-15V)±10%,0.5A;	
	4. Function Generator	0-20Vpp, 5A, 50Hz	

Theory:

Procedure

a) Measurement of DC Voltage

- i) Measure the voltage of a regulated DC power supply using an analog voltmeter.
- ii) Repeat the measurement using digital voltmeter (multimeter).
- Repeat the measurement using digital storage oscilloscope.
- iv) Compare the results.
- v) Find the range, resolution, precision, and accuracy of three different measuring instru

a. Measurement of DC Current

- i) Connect a load (rheostat) to a regulated DC power supply.
- ii) Measure the current using an analog ammeter.
- iii) Repeat the measurement using digital multimeter.
- iv) Connect a resistance in series with the load.
- v) Measure the voltage across the resistance using CRO
- vi) Current in the circuit is calculated as V/R.
- vii) Compare the results.
- Find the range, resolution, precision, and accuracy of three different measures. instruments.

Title-SC VOLTAGE & CURRENT MEASUREMENT.

Same-

- To measure the voltage in a given circuit using analog voltmeter, digital voltmeter, and digital storage oscilloscope using DC Supply. To compare the voltage measurement.
- ii) Bu measure the current in a given circuit using analog ammeter, digital ammeter, and digital storage oscilloscope using DC Supply. To compare the current measurement.

Aggaratus:-

SL No.	Name	Specification	Quantity
1	Valhneter	0-1/3/10/30; moving soil	
Z	Ammeter	0-0.1/0.3/1/3A; moving coil	
3	MIELVIS:		
	L Digital Multimeter		
	2. Digital storage	2 channel, 100MHz	THE RESIDENCE
	A Regulated DC Power	0-12V, 2A; (-15V-0-15V)±10%,0.5A;	
	4. Function Generator	0-20Vpp, 5A, 50Hz	7 TO 18 TO 18

Thearys

Procedure

a) Measurement of DC Voltage

- i) Measure the voltage of a regulated DC power supply using an analog voltmeter.
- ii) Repeat the measurement using digital voltmeter (multimeter).
- iii) Repeat the measurement using digital storage oscilloscope.
- iv) Compare the results.
- w) Find the range, resolution, precision, and accuracy of three different measuring instruments.

a. Measurement of BC Current

- i) Connect a load (rheostat) to a regulated DC power supply.
- ii) Measure the current using an analog ammeter.
- iii) Repeat the measurement using digital multimeter.
- iv) Connect a resistance in series with the load.
- v) Measure the voltage across the resistance using CRO
- vi) Current in the circuit is calculated as V/R.
- vii) Compare the results.
- viii) Find the range, resolution, precision, and accuracy of three different measuring instruments.

Observation

Table 1:- Table showing results for DC Voltage measurement in three different methods

Sl. No.	Analog meter			Multimeter	Digital storage oscilloscope			
31. 140.	Least count (V)	No. of Divisions	Voltage (V)	Voltage (V)	Least count (V)	No. of Division	Voltage (V)	
1								
2								
3								
4	ALCOHOLD STATE							
5	THE CHARLES							

Table 2:- Table showing results for DC Current measurement in three different methods

SI.	Analog meter			Multimeter	Digital storage oscilloscope			
	Least count (V)	No. of Divisions	Current (A)	Current (A)	Least count (V)	No. of Divisions	Voltage (V)	Current (A)= V/R
1								
2	THE SHEET					Bell Carlott		
3				AND DESIGNATION OF THE PERSON				STATISTICS
4								Vogettier in the second
5	三岛历场高				THE RESERVE OF THE PARTY OF THE			

Calculation:-

Result and Conclusion:-

Discussion:- (Write the answer of this question in your lab report)

A sinusoidal voltage is measured with an analog meter, a digital multimeter and a CRO. The readings are close to each other. But when a triangular wave is measured the readings deviated a lot. Why?