ANAS MUBEEN EDROOS
A56 / DSE - MTRX

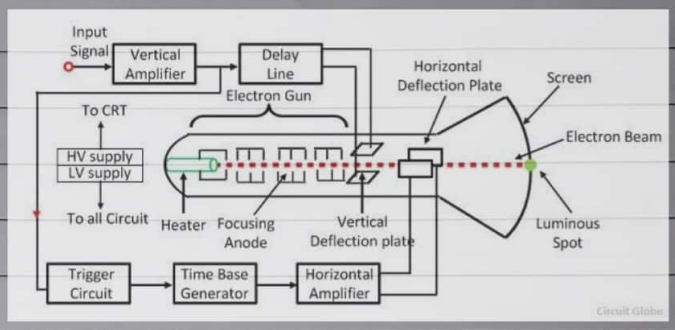
EWW Exp. ①

Aim :- To study Construction & operation of diff" lab equipments

Apparatus :- Resistor, CRO, DSO, Func" generator, Capacitor, Multimeter etc

Theory :-

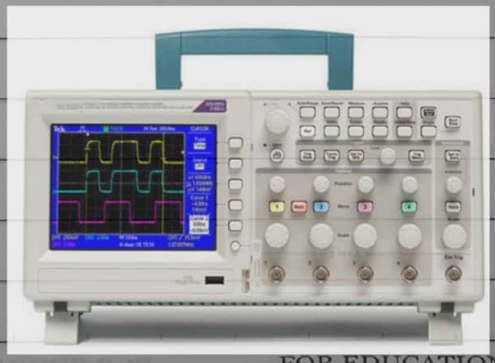
i) Cathode Ray Oscillator :-



The CRO is a type of electric instrument which is used to measure waveform. It is very fast x-y platform. The CRO used to analyze the waveform, transistor, phenomena. From a very low very freq. range to the radio frequencies.

When electron is injected the electron gun it passes through the control grid. The control grid controls the intensity of electron in the vacuum tube. Thus the scr spot is produced on the light scrn. If -ve potential on the control grid is low, then the bright spot is produced hence the intensity of light depends upon the -ve poten

ii) Digital Storage Osillscope :-



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The DSO is defined as the oscilloscope which store & analyze the signal digitally, ie in the form of 1 & 0. The DSO takes an i/p signals stores them & then display it on the screen.

DSO digitize & stored the i/p signals. This can be done by cathode ray tube by digitally memory.

The main fea. of the signals which are measured by the digital oscilloscope on two factors i-

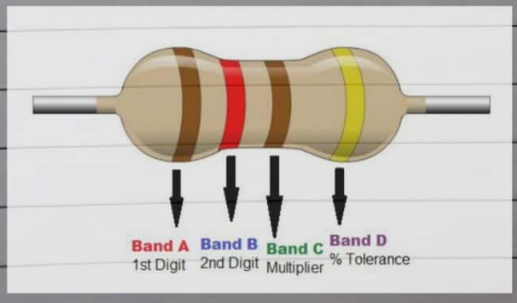
a) Sampling Rate.
b) Converter.

3) Function Generator :-

A function generator is used to is a signal source that has a capability to waveforms & o/p signals. The most common o/p waveforms are sinewaves, square waves & etc.

Function generators are very versatile instruments as they are capable of a wide waves & waveform & frequencies. In fact each of waveforms the usage that gives the integrator.

4) Resistor :-



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DATE:

A resistor is a passive 2-terminal electrical component that implements elements as a circuit element. It is used to reduce current flow, adjust signal levels, to divide, voltage.

The value of resistor can be defined through colours coding. For eg if it has resistor with colours Gray, Red, Orange, Gold : has a value of $82 \times 10^3 \pm 5\%$ Ω

Colours	Significant figures	Multiply	Tolerence
Black	0	$\times 10^0$	
Brown	1	$\times 10^1$	
Red	2	$\times 10^2$	
Orange	3	$\times 10^3$	
Yellow	4	$\times 10^4$	
Green	5	$\times 10^5$	
Blue	6	$\times 10^6$	
Violet	7	$\times 10^7$	
Grey	8	$\times 10^8$	
White	9	$\times 10^9$	
Gold		$\times 0.1$	$\pm 5\%$
Silver		$\times 0.01$	$\pm 10\%$
None			$\pm 20\%$

5) Capacitor :

A capacitor is electrical device behave as a charge storage device. It helps the electric charge when we apply a voltage across it. it gives up the storage charge to the circuit as when req. The most basic construction of a construction of a capacitor consist of a parallel conductor separate by a electric material

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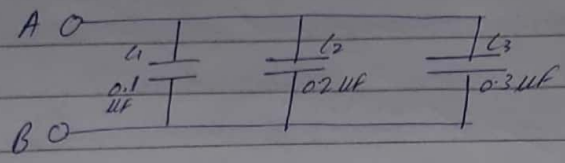
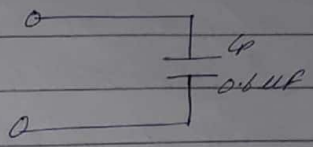
e.g :-

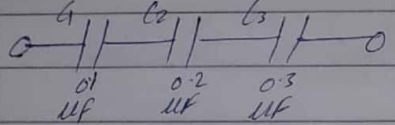


$C_p = C_1 + C_2 + C_3$

$C_p = (0.1 + 0.2 + 0.3)\ \mu F$

$C_p = 0.6\ \mu F$





$$\frac{1}{C_s} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} = \frac{1}{0.1} + \frac{1}{0.2} + \frac{1}{0.3} = \frac{011}{0.006}$$

$C_s = 0.05\ \mu F$

viii) Multimeter :-

A multimeter is also known as VOM is an electric measuring instrument that consist combines several measurement function in one unit. A typical multimeter can measure voltage, conduct, & resistance. It is useful for basic fault finding & field service work which can measure to very high degree of accuracy

Conclusion :- Hence we have studied construction & operation of diff lab equipments

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