**Experiment 1: Introduction and Acquaintance with Digital Storage Oscilloscope (DSO)**

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Q1) What is a Digital Storage Oscilloscope (DSO)? Read and learn about it on where / how can it be used?

A1) The digital storage oscilloscope is an instrument that enables us to store and analyze the signal or the waveform in a digital form. The DSO is used to store signals for analysis and processing, and they are used to measure the time period of signals, the time interval between signals, the frequency of the signal, etc. They can also be used to check for faulty components in a circuit.

Q2) Note the model number and manufacturer name of the DSO in the video.

A2) The model number of the DSO in the video is TDS 2012C, and the manufacturer of the DSO is Tektronix.

Q3) What are the functions of horizontal controls?

A3) The horizontal controls affect the time or x-axis represented horizontally across the screen. The "position" knob changes the x-axis (time) range. The "set to zero" command resets the time scale to the default position. The "scale" knob displays the signal after applying time compression or expansion.

Q4) What are the functions of vertical controls?

A4) The vertical controls affect the amplitude axis or the y-axis that is represented vertically across the screen. They are used for attenuation or amplification of the signal. The left position knob controls the yellow channel, and it shifts the signal along the y-axis. The right position knob controls the blue channel and performs the same function but on the blue channel. The scale knob affects the amplitude of the signal.

Q5) What is the purpose of a trigger in a DSO?

A5) The oscilloscope's trigger is used to adjust the trigger level to stabilize a repeating signal or trigger on a single event. It plays a significant role in capturing the signals and seeing them as stable pictures on the screen. When the DSO is triggered perfectly, only then will you be able to get a stable picture on the screen.

Q6) What are the range of amplitudes and frequencies that the DSO can display?

A6) The DSO can display frequencies up to 100MHz. The DSO can display amplitude in the range of -2V to +2V.

Q7) What is the DC coupling & AC coupling functionalities?

A7) DC or AC coupling on an oscilloscope lets one pick the portion of the signal that one wants to observe. DC coupling causes the entire signal to be displayed on the screen, including constant positive or negative voltages. AC coupling will block the steady voltage, allowing you to observe small variations.

Q8) In what way the cursors of DSO help in measurements?

A8) The DSO provides on-screen markers called cursors that can help make more accurate time and amplitude waveform measurements.

Q9) What is the use of “AUTO SET” functionality of DSO?

A9) Whenever you connect a signal from external source to the DSO, it is in its own mode, to bring it to a proper operational mode “AUTO-SET” function is used, which adjusts the screen to the general parameters of the signal it is connected to.

Q10) Where do you think the probe attenuation helps?

A10) Probe attenuation is helpful when you have a large amplitude signal coming from the source, and you want to display them on the screen, you need to reduce the amplitude. The reduction in amplitude can be done by using this probe attenuation function of the oscilloscope.