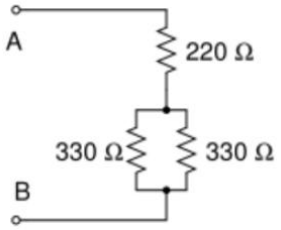
Sample Pre-Lab Quiz Questions for Expt 1

Duration: 10 min, Max marks: 5 marks

1. Out of the following statements regarding Digital Multimeter (DMM), mark **all the correct options.**

A) The input resistance of a DMM for voltage measurements is typically 10 kΩ.
B) For measuring the voltage at node A with respect to node B in a circuit, the **VΩmA** input terminal of the DMM should be connected to node A and the **COM** terminal to node B.
C) For measuring the voltage at node A with respect to node B in a circuit, the **VΩmA** input terminal of the DMM should be connected to node B and the **COM** terminal to node A.
D) The DMM display showing '1' during a resistance measurement is an indication that the resistance connected between the **VΩmA** and **COM** terminals is much smaller than the chosen resistance range.
E) The DMM display showing '1' during a resistance measurement is an indication that the resistance connected between the **VΩmA** and **COM** terminals is higher than the chosen resistance range.

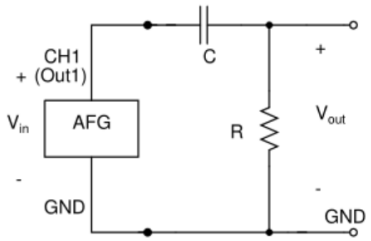
2. In the following circuit what is the total resistance in ohms across the terminals A and B?



3. With regard to the Digital Storage Oscilloscope (DSO), mark **all the correct options.**

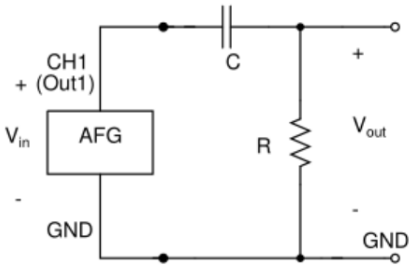
A) DSOs are versatile electronic instruments used for displaying and measuring time varying current signals.
B) DSOs are versatile electronic instruments used for displaying and measuring time varying voltage signals.
C) The input resistance of the DSO channel (without using the DSO probe) is 1 MΩ.
D) The input resistance of the DSO channel (without using the DSO probe) is 1 kΩ.
E) In order to display a test signal 4 sin ωt V of frequency 500 Hz on the DSO, the proper scale for the vertical channel is 1 ms/div and horizontal scale 1 V/div.
F) In order to display a test signal 4 sin ωt V of frequency 500 Hz on the DSO, an appropriate scale for the vertical channel is 1 V/div and for the horizontal scale is 1 ms/div.

4. The circuit diagram of an RC filter is shown below. Its cut-off frequency was found to be (1000/π) Hz. C = 0.1 μF. What is the value of R in ohms?



5. Circuit diagram of the RC filter circuit of Expt 1 is shown below. Its cut-off frequency is given as f_c Hz. For this circuit mark **all the correct options** from the following**.**

A) This circuit is that of a high-pass filter as it attenuates frequencies much higher than its cut-off frequency f_c.
B) This circuit is that of a high-pass filter as it attenuates frequencies much lower than its cut-off frequency f_c.
C) At very low frequencies (i.e. frequencies << f_c) the gain (ratio of output voltage to input voltage) will be close to unity.
D) At very high frequencies (i.e. frequencies >> f_c) the gain (ratio of output voltage to input voltage) will be close to unity.



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