Rose-Hulman Institute of Technology

ECE 207 Fall 2004 **Quiz 6** Name_____

CM _____ Score_____

Mark ***each*** true/false question either **T** OR **F** (1pt each)

___ Other factors being equal, noise due to electric field coupling is reduced as the impedance level of the victim circuit is reduced.
Why or why not? _____

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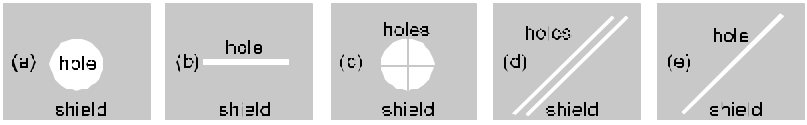
___ Using twisted-pair wires is an effective method of reducing noise due to magnetic field coupling.



for the next three questions

___ (***multiple choice***) The five shields above are identical apart from their apertures. Which shield has the lowest shielding effectiveness?

___ (***multiple choice***) Which shield has the highest shielding effectiveness?

___ (***multiple choice***) Which shield has the 3rd highest shielding effectiveness?
*Fully justify your answer.*_____

_____

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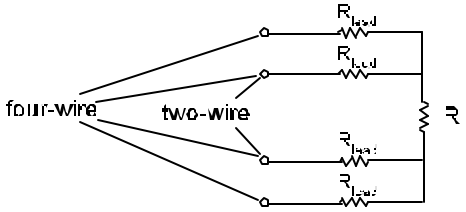

for the next two questions

___ A two-wire resistance measurement using a digital multimeter will give a lower resistance than a four-wire measurement since it is only connected to two lead resistances.

___ Given that R is an RTD, a four-wire resistance measurement will indicate a lower temperature than would a two-wire measurement.
Why or why not? _____

_____

___ For a given shield, the shielding effectiveness due to absorption, A, increases with frequency.

___ A shield has ten (10) identical holes. Measurements indicate that the noise voltage with no shield, V_{ns}, is 1 V and that the voltage with the shield present, V_{sh}, is 1 mV. Given this data, the shielding effectiveness for the shield with just one hole would be 70 dB.