EXERCISE 1

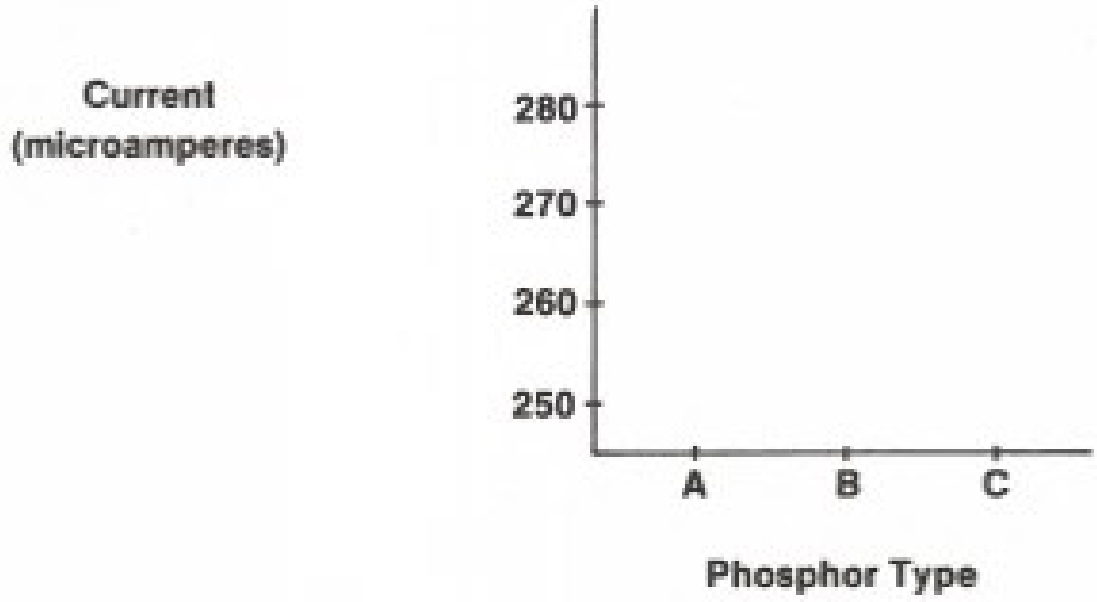
To determine the effect of two glass types and three phosphor types on the light output of a television tube, light output is measured by the current required in series with the tube to produce 30 foot-lamberts of light output. Thus, the higher the current is in microamperes, the poorer the tube is in light output. Three observations were taken under each of the six treatment conditions, and the experiment was completely randomized. The following data were recorded.

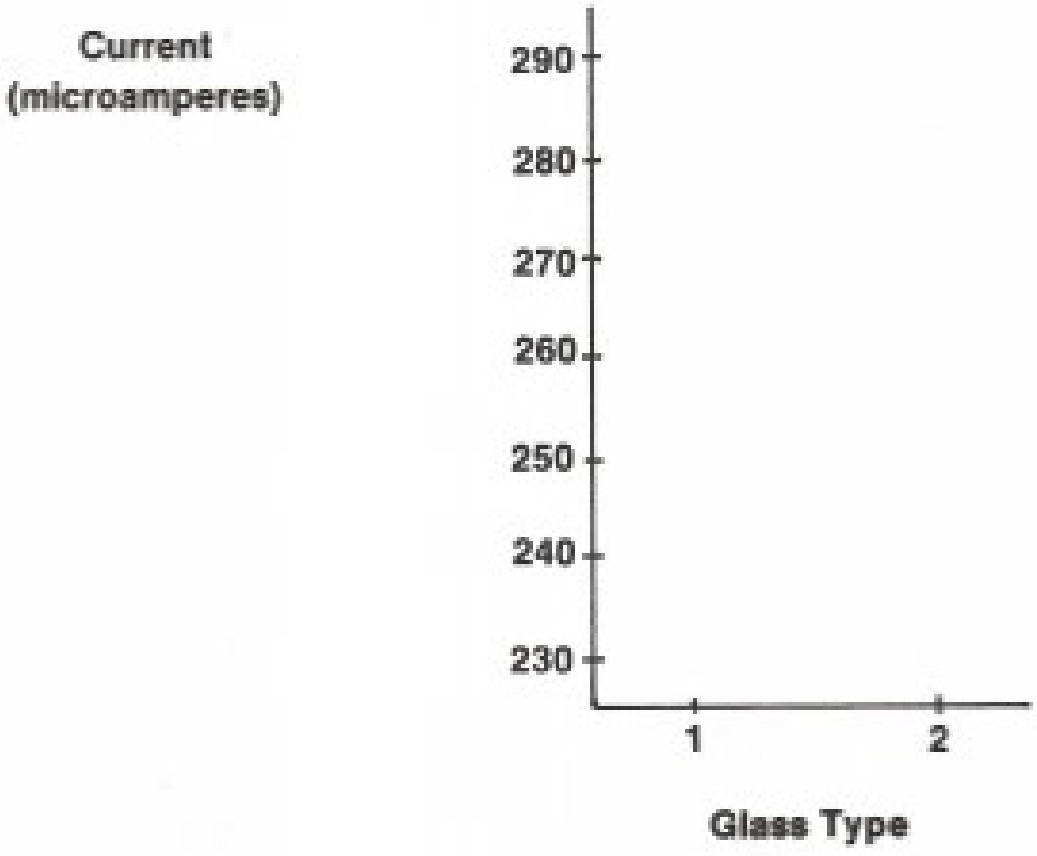
	Phosphor Type		
Glass Type	A	B	C
1	280	300	270
	290	310	285
	285	295	290
2	230	260	220
	235	240	225
	240	235	230

Do a graphical analysis of the data and determine which phosphor type and which glass type will give the least current.

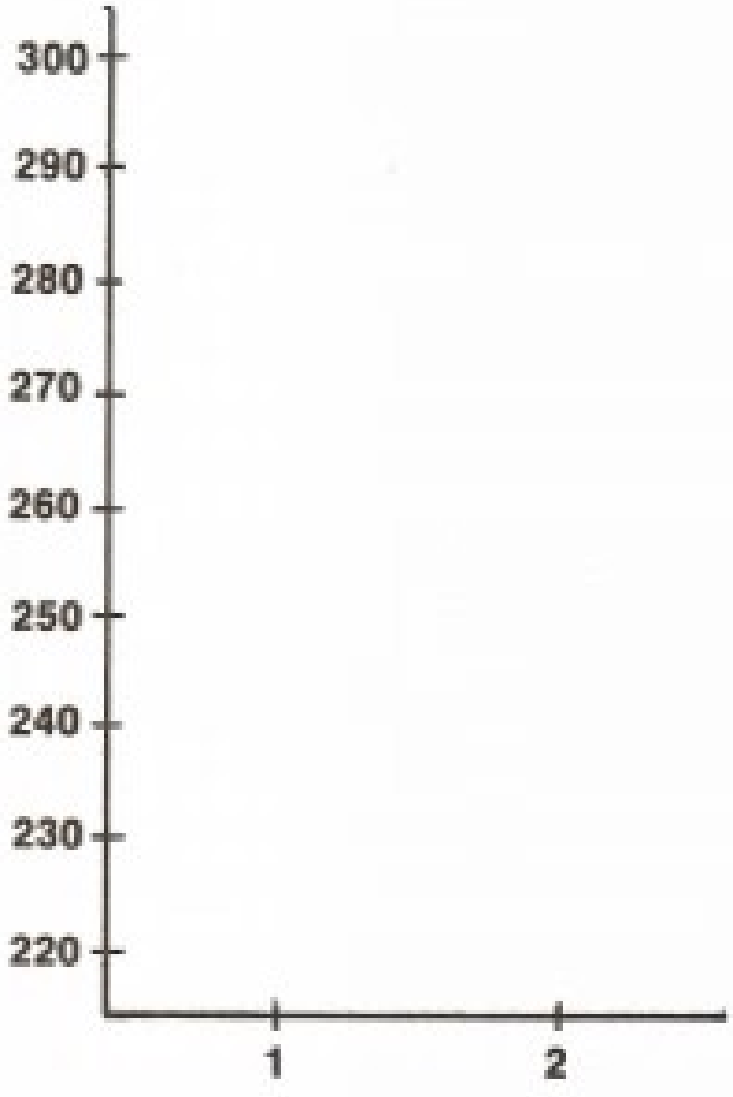
EXERCISE 1 (continued)

Factor Effects





Interaction Plot



EXERCISE 1 (continued)

Interpret the graphs of the main effects and the interaction.

Questions:

1. Based on the data and on the graphs of the main effects (i.e., factor effects), which phosphor type and which glass type should be used if the intent is to minimize the current?

2. Does the interaction plot suggest that an interaction exists between phosphor type and glass type?

3. What additional information is provided by the interaction plot that is not provided by the main effects plots?

4. Does the information from the interaction plot change your choices for phosphor type and glass type (question 1)?