

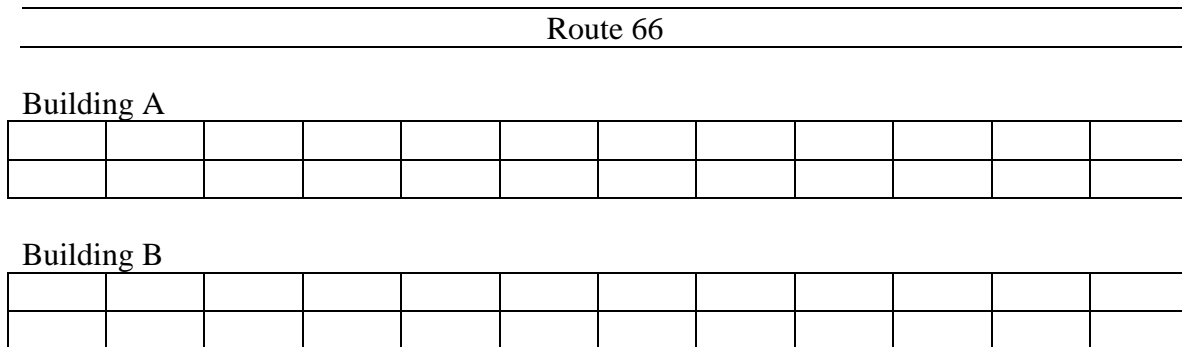
## Chapter 2: Collecting Data

### Section 2.1-2.2

Name \_\_\_\_\_

1. A friend who is not taking statistics wonders why it is that anyone would choose to take a sample. "Obviously," she says, "you would get better information from a census." In a short paragraph, explain why statisticians take samples rather than a census.
2. The basic sampling method studied in statistics is the simple random sample (SRS). What is the defining characteristic of a simple random sample?

3. The ZZZ chain of motels has a standard method of constructing their buildings to maximize the ease of parking for its customers. The rooms are arranged in adjacent buildings, A and B, so that customers can park close to their rooms. The layout for the 48-room motels is diagrammed below:



The manager wishes to assess customer satisfaction with the motel services. His plan is to survey one randomly selected customer in 12 of the rooms. The cleaning staff will place surveys on the customers' beds before they check in to the motel. In order to make the directions easy for the cleaning staff to follow, he elects to use systematic sampling.

- a) Explain carefully how you would use random numbers to set up the systematic sampling process. (In your description you may assume you have a random number table.)

- b) Write a short paragraph for the cleaning staff that explains how to carry out your method in part (a). The members of the cleaning staff have not taken statistics.

4. Bias is a potentially serious problem that can arise when taking a sample.

a) In a few sentences, explain the concept of bias.

b) What is the distinction between response bias and non-response bias?