Quiz 5.1A AP Statistics Name:

1. A university's financial aid office wants to know how much it can expect students to earn from summer employment. This information will be used to set the level of financial aid. The population contains 3478 students who have completed at least one year of study but have not yet graduated. A questionnaire will be sent to an SRS of 100 of these students, drawn from an alphabetized list.

   (a) Describe how you will select the sample. Follow the four steps: label; table; stopping rule; and identify sample.

   (b) Use the portion of the random digits table below to select the first five students in the sample.

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   95592 94007 69971 91481 60779 53791 17297 59335

   68417 35013 15529 72765 85089 57067 50211 47487
   ```

2. You're in college now, and you want to investigate the attitudes of students at your school toward the faculty's commitment to teaching. The Student Government will pay the costs of contacting about 500 students.

   (a) Specify the exact population for your study; for example, will you include part-time students?

   (b) Describe your sampling design. Will you use a stratified sample?

   (c) Briefly discuss the practical difficulties that you anticipate; for example, how will you contact the students in your sample?

Quiz 5.1B   AP Statistics   Name:

1. In late 1995, a Gallup survey reported that Americans approved of sending troops to Bosnia by 40% to 46% approval rate. The poll did not mention that 20,000 U.S. troops were committed to go. A CBS News poll mentioned the 20,000 figure and got the opposite outcome—a 33% to 58% disapproval rate. Briefly explain why the mention of the number of troops would cause such a big difference in the poll results. Write the name for the kind of bias that is at work here.

2. A church group interested in promoting volunteerism in a community chooses an SRS of 200 community addresses and sends members to visit these addresses during weekday working hours to inquire about the residents' attitudes toward volunteer work. Sixty percent of all respondents say that they would be willing to donate at least an hour a week to some volunteer organization. Bias is present in this sample design. Identify the type of bias involved and state whether you think the sample percent obtained is higher or lower than the true population percent.

3. To gather data on a 1200-acre pine forest in Louisiana, the U.S. Forest Service laid a grid of 1410 equally spaced circular plots over a map of the forest. A ground survey visited a sample of 10% of these plots.
(a) How would you label the plots?

(b) Use the table of random digits beginning at line **105** (below) to choose the first 2 plots in an SRS of 141 plots.

                95592 94007 69971 91481 60779 53791 17297 59335

                68417 35013 15529 72765 85089 57067 50211 47487

Quiz 5.1C   AP Statistics   Name:

1. For each of the following situations, identify the population as exactly as possible. That is, say what kind of individuals the population consists of and say exactly which individuals fall in the population. If the information given is not complete, complete the description of the population in a reasonable way.

(a) A business school researcher wants to know what factors affect the survival and success of small businesses. She selects a sample of 150 eating-and-drinking establishments from those listed in the telephone directory Yellow Pages for a large city.

(b) A member of Congress wants to know whether his constituents support proposed legislation on health care. His staff reports that 228 letters have been received on the subject, of which 193 oppose the legislation.

(c) An insurance company wants to monitor the quality of its procedures for handling loss claims from its auto insurance policyholders. Each month the company selects an SRS of all auto insurance claims filed that month to examine them for accuracy and promptness.

2. Complete the definition: "The design of a study is biased if . . .

3. Your school will send a delegation of 35 seniors to a student life convention. Two hundred girls and 150 boys are eligible to be chosen. A stratified random sample of 20 girls and 15 boys gives each senior the same chance to be chosen to attend the convention.

(a) Is it an SRS? Explain your answer.

(b) Beginning at line 108 in the random digits table, reproduced below, select the first three senior boys to be in the sample. Explain your procedures clearly.

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108   60940  72024  17868  24943  61790  90656  87964  18883
109   36009  19365  15412  39638  85453  46816  83485  41979
110   38448  48789  18338  24697  39364  42006  76688  08708
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1. A Gallup Poll asked, "Do you think the U.S. should take the leading role in world affairs, take a major role but not the leading role, take a minor role, or take no role at all in world affairs?" Gallup's report said, "Results are based on telephone interviews with 1,002 national adults, aged 18 and older, conducted Feb. 9–12, 2004."

(a) What is the population for this sample survey? What was the sample size?

(b) Gallup notes that the order of the four possible responses was rotated when the question was read over the phone. Why was this done?

2. Each state conducts an annual study of seat belt use by drivers following guidelines set by the federal government. Seat belt use is observed at randomly chosen road locations at random times during daylight hours. The locations are not an SRS of all locations in the state but rather a sample using the state's counties. In Hawaii, the counties are the islands that make up the state's territory. The survey was conducted on the 4 most populated islands: Oahu, Maui, Hawaii, and Kauai. The sample sizes on the islands are proportional to the amount of road traffic. Suppose there are 476 road locations in Kauai and we need to randomly select 22 of them to be in the sample.

(a) Use the portion of Table B below to choose the first 3 road locations for the seat belt survey sample. Explain you method clearly.

81486   69487   60513   09297   00412   71238   27649   39950

59636   88804   04634   71197   19352   73089   84898   45785

(b) What is the name for this kind of sampling design?