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 3,478 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 label the students in order to select the sample.

   (b) Use Table B, beginning at line 105, to select the first five students in the sample.

2. A corporation employs 2000 male and 500 female engineers. A stratified random sample of 200 male and 50 female engineers gives each engineer 1 chance in 10 to be chosen. This sample design gives every individual in the population the same chance to be chosen for the sample.
   (a) Is it an SRS? Explain your answer.

   (b) Beginning with line **108** on the Random Number Table, reproduced below, select the first 5 female engineers to be in the sample.

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   60940   72024   17868   24943   61790   90656   87964
   18883   36009   19365   15412   39638   85453   46816
   ```

3. On the twelfth anniversary of the death of Elvis Presley, a Dallas record company sponsored a national call-in survey. Listeners of over 1000 radio stations were asked to call a 1-900 number (at a charge of $2.50) to voice an opinion concerning whether or not Elvis was really dead. It turned out that 56% of the callers felt Elvis was alive.
(a) Identify the population of interest and the sample actually used to study that population in this sample.

   Population:

   Sample:

(b) Do you think that 56% is an accurate reflection of beliefs of all Americans on this issue? If not, identify some of the flaws in the sampling method.

4. Current drug therapies or neuroprotective methods do not provide sufficient help to patients with Parkinson's disease. A promising new treatment for Parkinson's disease involves injecting fetal tissue into the brain of the patient to replace damaged brain cells and compensate for the loss of essential nerve cell groups. A clinical trial was recently set up in Colorado to determine the effectiveness of this treatment. The trial involved 40 patients with Parkinson's disease. Twenty were given the fetal tissue and 20 were not.

(a) Identify the explanatory variable in this study and sketch a graphic of the experimental design.

(b) How would you suggest dividing the forty patients into the surgery group and the control group?

(c) Suppose the group who undergo surgery begin to feel more "positive" and "healthier" on subsequent patient follow-up questionnaires. Would you be willing to conclude that this response could be attributed solely to the injection of the cells? Explain.

(d) In the Colorado study, the twenty patients in the control group were given a surgical procedure that only involved cutting two holes in their skull without the injection of fetal tissue. Were the patients in this study blind to whether they were in the control group or the treatment group? Explain the benefits from this approach.

(e) The Colorado study caused a bit of controversy in the medical world. George Annas, director of the law, medicine, and ethics program at the Boston University School of Medicine, stated, "Not only is it ethical to do it this way, it's probably unethical to do it any other way" (*Boston Globe*, February 4, 1999). Do you believe that the knowledge gained from this type of comparative experiment is worth the potential dangers of fake surgery?