1) Management at a retail store is concerned about the possibility of drug abuse by people who work there. They decide to check on the extent of the problem by having a random sample of the employees undergo a drug test. Several plans for choosing the sample are proposed. Name the sampling strategy in each.
   a. Randomly select ten stores around the country and survey all the employees that work at those stores.
   b. Choose the fourth person that arrives to work for each shift.
   c. There are four employee classifications: supervisors, fulltime clerks, part-time clerks, and maintenance staff. Randomly select ten people from each category.
   d. Each employee has a three-digit identification number. Randomly choose 40 numbers.

2) One manager suggesting just going to the stores in the city where the company is headquartered so they wouldn’t have to travel far. What type of sampling would this be? Explain why this method is biased. Be sure to name the kind(s) of bias you describe and link it to the variable of interest.

3) Listed at the right are the names of twenty full-time clerks on the retail staff. Use the random numbers listed below to select four of them to be in your sample. Clearly explain your method.

4) Name and describe the kind of bias that might be present if the management decides that instead of subjecting people to random testing they’ll just…
   a. Hold department meetings and drug test the employees that attend.
   b. Offer additional employee discounts for those employees who agree to be drug tested.
1) a. cluster  
   b. systematic  
   c. stratified  
   d. simple

2) This would be convenience sampling. Undercoverage might occur. Employees of stores in that city may not be the same as employees in other areas. If that city happens to have higher drug problems, the employees at those stores might abuse drugs more than most employees at the company who would not be surveyed. The managers would overestimate the drug abuse rates in their company.

3) Assign two digit numbers to each clerk on the retail staff, as noted in the table. Use the random digits, in groups of 2, to select the first four people in the sample. Ignore any digits 21 - 99 and 00 because there are no corresponding people, and ignore repeated numbers.

   18192  95318  02975  01191
   05 - Carol  06 - Joshua  07 - Barbara  08 - Allan
   09 - Rich  10 - Sharyn  11 - Brian  12 - Kelly
   13 - Nicole  14 - John  15 - June  16 - Frank
   17 - Steve  18 - Andrea  19 - Matthew  20 - Erin

   People selected: Andrea, Matthew, Marissa, and Brian

4) a. Convenience sample; bias: under or overcoverage. We are sampling the employees that show up, which might not be representative of the entire retail staff. Drug use may lead to absence, causing us to underestimate the proportion of drug users.

   b. Voluntary response sample; bias: toward employees who shop at the store. Employees who do use drugs would probably not volunteer for any reason, which may lead us to underestimate drug use.