

Ch 4 Practice Test Solutions

MC

1. C
2. e
3. d
4. C
5. b
6. b
7. a
8. d
9. d
10. b
11. d

F.R.

12. a. The experimental units are the acacia trees. The treatments are placing either active beehives, empty beehives, or no beehives in the trees. The response variable is the damage caused by elephants to the trees.
- b. Randomly assign* 24 of the acacia trees to have active beehives placed in them, 24 to have empty beehives placed in them, and the remaining 24 to remain empty. To do this, assign the trees numbers from 01 to 72 and use a random number table to pick 24 different 2-digit numbers in this range. Those trees will get the active beehives. The trees associated with the next 24 different 2-digit numbers

will get the empty beehives and the remaining 24 trees will remain empty (no beehives). Compare the damage caused by elephants to the trees with active beehives, those with empty beehives, and those with no beehives.

*The random assignment can be done using $\text{rand.Int}(1, 72)$ or slips of paper in a hat. Describe in detail how to perform whichever method chosen.

13 a. It is not a SRS b/c the samples were taken in proportion to each region - which means each adult did not have an equal chance of selection.

b. If the household members who typically answer the phone have a different opinion than those who don't typically answer the phone, there will be a bias. By randomly choosing the respondent within each household they can avoid such potential bias.

c. Residents who do not have landlines (maybe cell phone only users) would be underrepresented. If these people have a different opinions than people who have landlines, then there will be a bias.

14. a. Each of the 11 individuals will be a block in a matched pairs design. Each participant will take the caffeine tablets on one of two-day sessions and the placebo on the other. The blocking was done to account

for individual differences in other factors, such as dexterity and other variables that may impact the response.

b. The order was randomized to control for any possible influence of the order in which the treatments were administered on the subject's tapping speed. For example, after the first trial subjects might practice the tapping task and do better the second time. If all subjects got caffeine the second time, the researchers wouldn't know if the increase was due to the practice or the caffeine.

c. Yes. Neither the subjects nor the people who come in contact with them during the experiment have knowledge of the order in which the caffeine or placebo was administered.