MATH 1342

Homework 8 (Sections 6.1 – 6.3)

Instructions: Answer all questions through the EMCF tab of casa under the assignment named "Homework 8" before the deadline.

There is no "Submit" button. Your answers will be automatically submitted once the deadline arrives.

Assignments will be graded out of 20 points.

1. Section 6.1; Problem 1   A. True   B. False

2. Section 6.1; Problem 2   A. True   B. False

3. Section 6.1; Problem 3   A. True   B. False

4. Section 6.1; Problem 4   A. True   B. False

5. Section 6.1; Problem 5   A. True   B. False

6. Section 6.1; Problem 8 (Population and Sample)

     A. Population: All regulators; Sample: 5 selected regulators.

     B. Population: 10 manufacturers; Sample: 5 selected regulators.

     C. Population: All regulators; Sample: 10 manufacturers.

     D. Population: All regulators; Sample: 50 selected regulators.

     E. Population: 50 selected regulators; Sample: 10 manufacturers.

7. Section 6.1; Problem 8 (Sampling Technique)

     A. Simple Random Sample   B. Convenience Sample

         C. Multi-stage Sampling   D. Stratified Sampling

             E. Probability Sampling

8. Section 6.1; Problem 12

    A. Observational Study, because data collection was performed.

    B. Observational Study, because the sampling was done randomly.

    C. Experiment, because the sample was divided into two groups.

    D. Experiment, because the researcher actively imposed control on the sample.

    E. Survey Study, because participants would need to fill out their contact information.

Use the following scenario in your answering of questions 9 and 10. (Use the same answer choices for each question.)

From a sampling frame of 1000 individuals (500 men and 500 women), a sample of 100 is to be selected, with the desired sample consisting of 40 men and 60 women.

9. Which of the following methods describes probability sampling?

10. Which of the following methods describes stratified sampling?

    A. Each person is assigned a three digit number (from 000 to 999). On a Random Digit Table, numbers are read, three at a time. The first hundred three-digit numbers read will represent the people in the sample.

    B. To make the sampling frame a more manageable size, only people with birthdays from June 1 to December 31 will be considered. From that reduced sampling frame, the method described in Answer Choice A will be used.

C. Every man in the sampling frame will be assigned 8 sequential 4-digit numbers (from 0000 to 3999; example: 0000, 0001, 0002, 0003, 0004, 0005, 0006, 0007), and every woman in the sampling frame will be assigned 12 sequential 4-digit numbers (from 4000 to 9999; example: 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4011). From a Random Digit Table, groupings of 4 numbers will be read and the first 100 subjects with their number read will be in the sample (duplicate selections will be ignored).

D. From an alphabetized list of people in the sampling frame, the first hundred are selected.

E. Each man in the sampling frame is assigned two sequential three-digit numbers (from 000 to 999; example: 000, 001). From a Random Digit Table, groupings of three numbers at a time are read. The first 40 three-digit numbers will represent the men selected (duplicate selections will be ignored). Then, each woman in the sampling frame will be assigned two sequential three-digit numbers (from 000 to 999; example: 000, 001). From a Random Digit Table, groupings of three numbers at a time are read. The first 60 three-digit numbers will represent the women selected (duplicate selections are ignored). These 40 men and 60 women will together form the sample of 100 people.

11. Section 6.2; Problem 4 (a)   A. Experiment   B. Observational Study

12. Section 6.2; Problem 4 (b)   A. Randomized   B. Block Design

13. Section 6.2; Problem 4 (c)

A. Explanatory: IQ Score; Response: Music/Relax/No Instructions Groups

B. Explanatory: Music/Relax/No Instructions Groups; Response: Subject Age

C. Explanatory: Music/Relax/No Instructions Groups; Response: IQ Score

D. Explanatory: Subject Age; Response: IQ Score

E. Explanatory: Subject Age; Response: Music/Relax/No Instructions Groups

14. Section 6.3; Problem 7 (a)

   A. Single Digits Assigned: Women: 0, 1, 2, 3; Men: 4, 5, 6, 7, 8, 9

   B. Single Digits Assigned: Women: 0, 1, 2, 3, 4; Men: 5, 6, 7, 8, 9

   C. Two Digits Assigned: Women: 00 to 49; Men: 50 to 99

   D. Single Digits Assigned: Women: 0; Men: (all other numbers ignored)

   E. Single Digits Assigned: Women: 0, 2, 4, 6, 8; Men: 1, 3, 5, 7, 9

15. Section 6.3; Problem 7 (b) [Use Line 136 only]

   A. First Run: 3; Second Run: 5; Third Run: 6

   B. First Run: 6; Second Run: 2; Third Run: 4

   C. First Run: 5; Second Run: 5; Third Run: 4

   D. First Run: 3; Second Run: 5; Third Run: 5

   E. First Run: 3; Second Run: 3; Third Run: 2

16. Section 6.3; Problem 7 (c)

   A. Expected Value: 6.67 (Assume 7)

   B. Expected Value: 5

   C. Expected Value: 4.33 (Assume 4)

   D. Expected Value: 7.33 (Assume 7)

   E. None of the above choices.

Use the following information to answer questions 17, 18, and 19.

A personnel director at a large company studied the eating habits of employees by watching the movements of a selected group of employees at lunchtime. The purpose of the study was to determine the proportion of employees who buy lunch in the cafeteria, bring their own lunches, or go out to lunch.

17. The study could best be categorized as:

    A. a census

    B. a survey sample

    C. an observational study

    D. a designed experiment

    E. none of these

18. If the director includes only the employees in one department in her study, she is performing a

    A. simple random sample

    B. quota sample

    C. convenience sample

    D. multi-stage sample

    E. census

19. If the director selects 50 employees at random from throughout the company and categorizes their lunchtime practices by gender, she is:

    A. blocking for gender

    B. testing for a lurking variable

    C. promoting sexual harassment

    D. testing for bias

    E. none of these

20. In a class, grades fall into the following distribution:

A: 25%; B: 35%; C: 20%; D: 15%, F: 5%.

Assign these values to a random digit table and run (using line 135) for a sample of 10 students.

Proposed Solution:

Assignments (since the question is referring to grades):

A: 90 to 00; B: 80 to 89; C: 70 to 79; D: 60 to 69; F: 01 to 59

Line 135: 71435 51648 89675 97778

becomes: 71 43 55 16 48 89 67 59 77 78

so C F F F F B D D C C

A: 0;   B: 1;   C: 2;   D: 2;   F: 4

What is wrong with the proposed solution?

 A. The tallying of letter grades was miscounted.

 B. The assignment of letter grades to digits was not based on the percentage distribution.

 C. Line 135 of the Random Digit Table was not used.

 D. The two digit numbers were mistranslated into their letter equivalents (careless mistake).

 E. There is nothing wrong with the proposed solution.