

201 Quiz 1: 15 min

September 4, 2002

Dr. Bensmail

Name:.....

SSN:.....

Question 1:

Objective of a.....sampling is:

1. to select n units out of N such that each element has an equal chance of being selected.
2. use a table of random numbers, a computer random number generator, or a mechanical device to select the sample.

Question 2:

Here are the steps you need to follow in order to achieve a random sample:

- number the units in the population from 1 to N
- decide on the n (sample size) that you want or need
- $k = N/n =$ the interval size
- randomly select an integer between 1 to k
- then take every k th unit

Question 3:

A random sampling, also sometimes called proportional or quota random sampling, involves dividing your population into homogeneous subgroups and then taking a simple random sample in each subgroup. In more formal terms:

Divide the population into non-overlapping groups $N_1, N_2, N_3, \dots, N_i$, such that $N_1 + N_2 + N_3 + \dots + N_i = N$.

Then do a simple random sample of (n/N) in each group.

Question 4:

In sampling, we follow these steps:

1. Divide population into groups (usually along geographic boundaries).
2. Randomly sample groups.
3. Measure all units within sampled groups .

Question 5:

There are typically four levels of measurement that are defined:

1.
2.
3.
4.

Question 6:

In measurement the numerical values just "name" the attribute uniquely. No ordering of the cases is implied.

In measurement the attributes can be rank-ordered. Here, distances between attributes do not have any meaning.

In measurement the distance between attributes does have meaning.

Question 7:

Fill in the empty space with: Nominal, Ratio, Interval or Ordinal:

(1) Players numbers in basketball are measures at the level. A player with number **30** is not more of anything than a player with number **15**, and is certainly not twice whatever number **15** is.

(2) When we measure temperature (in Fahrenheit), the distance from **30** to **40** is same as distance from **70** to **80**. The interval between values is interpretable. Because of this, it makes sense to compute an average of an interval variable, where it doesn't make sense to do so for scales.

But note that in measurement, ratios don't make any sense, **80** degrees is not twice as hot as **40** degrees (although the attribute value is twice as large).

(3) In measurement, there is always an absolute **zero** that is meaningful. This means

that you can construct a meaningful fraction with a ratio variable.

(4) The number of new clients for a phone company in past six months is a measurement.

Because you can have **zero** clients and because it is meaningful to say that "we had twice as many clients in the past six months as we did in the previous six months."

Question 8:

On a survey you might code Educational Attainment as

Educational Attainment	code
less than High School	0
Some High School	1
High School degree	2
Some college	3
College degree	4
Post college	5

In this measure:

1. Do higher numbers mean more education?
2. Is distance from **0** to **1** same as **3** to **4**?
3. What kind of measure is this one?