

**ECO251 QBA1  
FIRST HOUR EXAM  
February 21, 2003**

Name: \_\_\_\_\_ Key \_\_\_\_\_  
Social Security Number: \_\_\_\_\_

Part I. (34 points)

1. Which of the following is NOT a reason for the need for sampling?
  - a) It is usually too costly to study the whole population.
  - b) It is usually too time consuming to look at the whole population.
  - c) It is sometimes destructive to observe the entire population.
  - d) \*It is always more informative to investigate a sample than the entire population.
  
2. Most analysts focus on the cost of tuition as the way to measure the cost of a college education. But incidentals, such as textbook costs, are rarely considered. A researcher at Drummand University wishes to estimate the textbook costs of first-year students at Drummand. To do so, she monitored the textbook cost of 250 first-year students and found that their average textbook cost was \$300 per semester. Identify the population of interest (target population) to the researcher.
  - a) All Drummand University students.
  - b) All college students.
  - c) \*All first-year Drummand University students.
  - d) The 250 students that were monitored.
  
3. Which of the following is a continuous quantitative variable?
  - a) The color of a student's eyes
  - b) The number of employees of an insurance company
  - c) \*The amount of milk produced by a cow in one 24-hour period
  - d) The number of gallons of milk sold at the local grocery store yesterday
  
4. If I describe the place where a number is in a table as column 3, row 5, the location of that number is a:
  - a) Field
  - b) \*Cell
  - c) Stub
  - d) Label

TABLE 2-1

An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. A representative from a local insurance agency selected a random sample of insured drivers and recorded,  $X$ , the number of claims each made in the last 3 years, with the following results.

$X$	$f$	$fX$
1	14	14
2	18	36
3	12	36
4	5	20
5	1	5
	<u>50</u>	<u>111</u>

5. Referring to Table 2-1, how many drivers are represented in the sample?
  - a) 5
  - b) 15
  - c) 18
  - d) \*50
  
6. Referring to Table 2-1, how many total claims are represented in the sample?
  - a) 15
  - b) 50
  - c) \*111
  - d) 250
  
7. When constructing charts, the following is plotted at the class midpoints:
  - a) \*frequency histograms.
  - b) percentage polygons.
  - c) cumulative relative frequency ogives.
  - d) All of the above.
  
8. Which of the following is NOT a reason for drawing a sample?
  - a) A sample is less time consuming than a census.
  - b) A sample is less costly to administer than a census.
  - c) \*A sample is usually a good representation of the target population.
  - d) A sample is less cumbersome and more practical to administer.

TABLE 2-4

A survey was conducted to determine how people rated the quality of programming available on television. Respondents were asked to rate the overall quality from 0 (no quality at all) to 100 (extremely good quality). The stem-and-leaf display of the data is shown below.

Stem	Leaves
3	24
4	03478999
5	0112345
6	12566
7	01
8	
9	2

9. Referring to Table 2-4, what percentage of the respondents rated overall television quality with a rating of 50 or below?

- a) 0.11
- b) 0.40
- c) \*0.44 (11 out of 25)
- d) 0.56

TABLE 2-11

The ordered array below resulted from taking a sample of 25 batches of 500 computer chips and determining how many in each batch were defective.

Defects

1, 2, 4, 4, 5, 5, 6, 7, 9, 9, 12, 12, 15, 17, 20, 21, 23, 23, 25, 26, 27, 27, 28, 29, 29

Class	Frequency ( $f$ )	Rel Frequency ( $f_{rel}$ )
0 - 5.99	4	.16
5 - 9.99	6	.24
10 - 24.99	2	.08
15 - 20.99	2	.08
20 - 24.99	4	.16
25 - 29.99	7	.28
Total	25	1.00

10. Referring to Table 2-11, if a frequency distribution for the defects data is constructed, using "0 but less than 5" as the first class, the frequency of the "20 but less than 25" class would be 4.

11. Referring to Table 2-11, if a frequency distribution for the defects data is constructed, using "0 but less than 5" as the first class, the relative frequency of the "15 but less than 20" class would be .08.