

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 240 points (to be scaled down to 180 points) and is scheduled to take 120 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 12-point question should take 6 minutes. I cannot give some extra time but not a lot because some students have sports they need to get to.

The formulas in Excel © which you may need to know are written as such in Excel.

PERMUT(number, number_chosen)

COMBIN(number, number_chosen)

BINOM.DIST(number_s, trials, probability_s, cumulative)

HYPGEOM.DIST(sample_s, number_sample, population_s, number_pop, cumulative)

NORM.DIST(x, mean, standard_dev, cumulative)

NORM.INV(probability, mean, standard_dev)

1) (6 points each) Use the table of descriptive statistics called “Grade” to the right to answer THREE of the following questions.

A) What does the fact that the skewness is negative tell you? Briefly explain your logic.

B) What does the negative Kurtosis tell you? Briefly explain your logic.

C) What does the smallest(3) tell you? Briefly explain your logic.

D) Given the count, why do I choose 3 for the largest? Briefly explain your logic.

E) What does the maximum tell you? Briefly explain your logic.

2) (12 points) Answer EITHER Part A OR Part B.

A) Why must the research be presented such that the results are unambiguously written?

B) Why should the results of the research be adequate for the decision maker’s purpose?

3) (12 points) Answer EITHER Part A OR Part B.

A) When doing a random sample, would you want a bigger sample when the population has a large or a small variation? Explain your logic.

B) What is meant by a “proportionate stratified random sample”? Why would you use that method? Explain your logic.

4) (14 points) Answer EITHER Part A OR Part B.

A) What type of question might you be asking which would lead you to draw a pie chart? Explain why a pie chart would be helpful in displaying the data.

B) What type of question might you be asking which would lead you to draw a line chart? Explain why a line chart would be helpful in displaying the data.

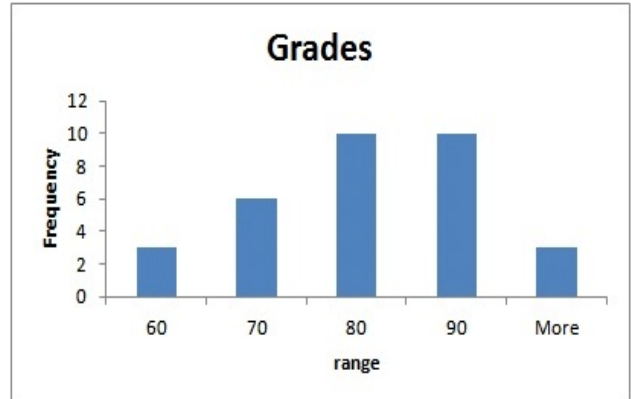
5) (14 points) Answer EITHER Part A OR Part B.

A) When creating the codes for coding, why must the codes be mutually exclusive? Explain your logic.

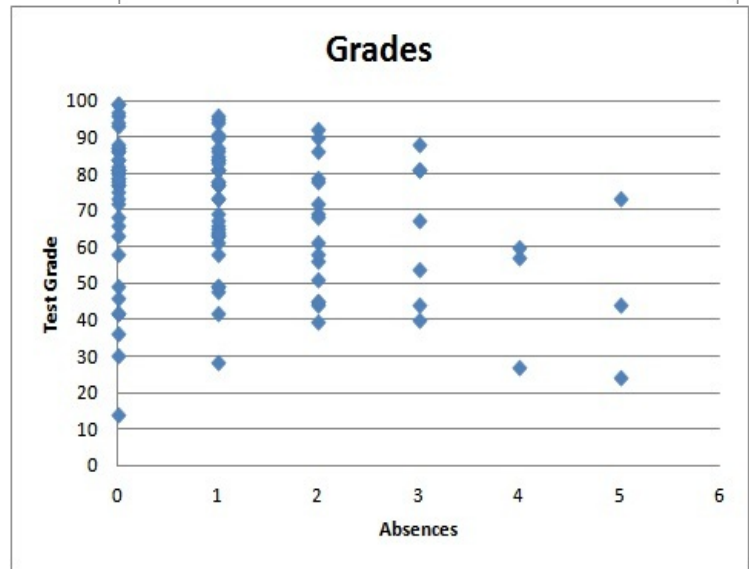
B) When creating the codes for coding, why must the codes be exhaustive? Explain your logic.

<i>Grade</i>	
Mean	77.21
Standard Error	1.804
Median	78
Mode	78
Standard Deviation	10.36
Sample Variance	107.4
Kurtosis	-0.543
Skewness	-0.513
Range	39
Minimum	53
Maximum	92
Sum	2548
Count	33
Largest(3)	91
Smallest(3)	60
Confidence Level(95.0%)	3.67

6) (10 points) Answer EITHER Part A OR Part B.
 A) The histogram to the right entitled “Grades” is unaltered from what Excel© created except I changed the title and deleted the legend. What does the bar over 70 going to 6 tell you? Briefly explain your logic.
 B) The scatter plot to the right entitled “Grades” is unaltered from what Excel© created, except that I changed the vertical scaled and I eliminated the legend. What does that plot tell you? Briefly explain your logic.



7) (12 points each) For TWO of the formulas below, tell me what question you may be answering. For example, If I gave you $\text{norm.dist}(30,45,10,\text{TRUE})$, then you could answer, “This will give you the percentage of days with a high temperature below 30 degrees if the average high is 45 and the standard deviation is 10.” There are multiple correct answers to each part. For example, these could be blooms on a rose bush. You will probably want to look at the equations on the top of the first page.
 A) $\text{PERMUT}(18, 3)$
 B) $1-\text{HYPGEOM.DIST}(4, 40, 15, 0,\text{True})$
 C) $\text{NORM.INV}(.6,40,10)$



8) (14 points) Answer EITHER Part A OR Part B.
 A) What is meant by pre-coding? What type of survey questions would you do that? Explain your logic.
 B) Why might a qualitative research question give you more information than a quantitative research question. Briefly state what each is and explain your logic.

9) (20 points) Answer EITHER Part A OR Part B.
 A) Some researchers feel that deception in the research is never acceptable. Others feel that it can be acceptable under certain circumstances. What would one of those circumstances be? Which side do you agree with? Why do you feel that?
 B) The book mentions several ways that the sponsor may change the results of the research, but states that they have a moral obligation to not do that. Give two types of changes which should not be made and explain why they should not be made.

10) (16 points) Answer EITHER Part A OR Part B.
 A) According to Page 66 of your book, the scientific method requires a self-correcting process. Why is that a requirement?
 B) When comparing a field experiment and a lab experiment, which is more likely to have a problem with confounding variables? Explain your logic making sure you define confounding variables.

11) (16 points) Answer EITHER Part A OR Part B.

A) I discussed in class the problem with getting a good operational definition of the number of CDs I have in my collection. If you were to define the number of CDs in an attempt to figure out how many different songs I have, how would you define a CD? (Remember, I have bought a CD and then a re-issue of the same CD with a bonus track or two.)

B) What is meant by an *operational definition*? Why is it important to have a good one? Give an example where a bad one causes problems.

12) (14 points) Answer EITHER Part A OR Part B.

A) The first stage of research is to start with a management question, and then refine it to a research question, then an investigative question, and eventually the measurement question. What is meant by the research question? Give an example and state why it needs to be refined.

B) Explain the difference between the reporting and descriptive types of research.

13) (16 points) Answer EITHER Part A OR Part B.

A) If you were trying to find out why customers stopped coming back, would you use an exploratory study or a causal study? Explain your logic.

B) If you were to setup a lab experiment designed to use Mills Method of Agreement to find the cause of people switching products with 5 possible causes, how would you design it? Explain how that uses that method.

14) (20 points) Answer EITHER Part A OR Part B.

A) One type of non-probability sampling is called “purposeful sampling.” What is that and when would that be a good method of sampling? Give an example and explain why you would sample that way.

B) What is a qualitative study? If you were doing a qualitative study and interviewing people, would these interviews be more likely to be unstructured or structured interviews? Explain your logic giving an example of a research question you may be asking.

15) (20 points) Answer EITHER Part A OR Part B.

A) Set up a cross tabulation for Republicans and Democrats vs. Men and Women. Obviously, each square has one number and 2 percentages. Do **NOT** worry about calculating the percentages – rather just make up numbers for the percentages. Tell what the number and the percentages in the upper-left-hand cell means.

B) Create a stem and leaf table for temperatures. Include 8 data points. Explain how this table is like a histogram and how it is more useful.