Name _____ Date _____ Period _____

Part 1 Practice Exam

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) The SPCA collects the following data about the dogs they house. Which is categorical?   1) _____
   A) weight
   B) breed
   C) veterinary costs
   D) number of days housed
   E) age

2) Which variable about German Shepherds is most likely to be described by a Normal model?   2) _____
   A) breed
   B) veterinary costs
   C) age
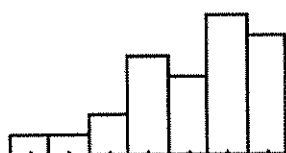   D) number of days housed
   E) weight

3) The SPCA has kept these data records for the past 20 years. If they want to show the trend in the   3) _____
   number of dogs they have housed, what kind of plot should they make?
   A) timeplot   B) boxplot   C) pie chart   D) bar graph   E) histogram

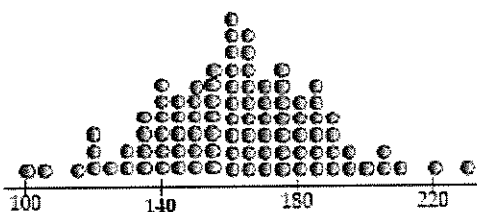4) The veterinary bills for the dogs are summarized in the ogive below. Estimate the IQR of these   4) _____
   expenses.

   A) $75   B) $150   C) $50   D) $100   E) $200

5) Last weekend police ticketed 18 men whose mean speed was 72 miles per hour, and 30 women   5) _____
   going an average of 64 mph. Overall, what was the mean speed of all the people ticketed?
   A) none of these
   B) It cannot be determined.
   C) 69 mph
   D) 68 mph
   E) 67 mph

6) Which is true of the data shown in the histogram?
   I. The distribution is skewed to the right.
   II. The mean is probably smaller than the median.
   III. We should use median and IQR to summarize these data.

   A) I only
   B) II only
   C) I, II, and III
   D) III only
   E) II and III only

7) The best estimate of the standard deviation of the mens' weights displayed in this dotplot is

   A) 15   B) 40   C) 10   D) 35   E) 25

8) If we want to discuss any gaps and clusters in a data set, which of the following should not be chosen to display the data set?
   A) stem–and–leaf plot
   B) boxplot
   C) dotplot
   D) histogram
   E) any of these would work

9) Suppose a Normal model describes the number of pages printer ink cartridges last. If we keep track of printed pages for the 47 printers at a company's office, which must be true?
   I.   The page counts for those ink cartridges will be normally distributed.
   II. The histogram for those page counts will be symmetric.
   III. 95% of those page counts will be within 2 standard deviations of the mean.
   A) none
   B) I, II, and III
   C) II only
   D) II and III
   E) I only

10) Suppose that a Normal model describes fuel economy (miles per gallon) for automobiles and that a Saturn has a standardized score (z–score) of +2.2. This means that Saturns . . .
    A) get 2.2 times the gas mileage of the average car.
    B) get 2.2 miles per gallon.
    C) get 2.2 mpg more than the average car.
    D) achieve fuel economy that is 2.2 standard deviations better than the average car.
    E) have a standard deviation of 2.2 mpg.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

11) **Commuting to work** The table shows how a company's employees commute to work.   11) _____

Job Class	Transportation			
	Car	Bus	Train	Total
Management	26	20	44	90
Labor	56	106	168	330
Total	82	126	212	420

a. What is the marginal distribution (in %) of mode of transportation?
Car _____ Bus _____ Train _____

b. What is the conditional distribution (in %) of mode of transportation for management?
Car _____ Bus _____ Train _____

c. What kind of display would you use to show the association between job class and mode of transportation? (Just name a graph.)

12) **Book sales** A publishing company pays its sales staff $600 a week plus a commission of   12) _____
$0.50 per book sold. For example, a salesman who sold 440 books earned $600 + 0.50(440) = 820.

a. The table shows summary statistics for the number of books the large sales staff sold last week.   Fill in the table to show the statistics for the pay these people earned.

Statistic	Books Sold	$ Earned
Mean	640	
Standard deviation	360	
IQR	450	
Maximum	1420	

b. The newest employee had a pretty good week. Among all the salespeople her pay corresponded to a z–score of +1.80. What was the z–score of the number of books she sold?

13) **Cellphones** *ConsumerReports.org* evaluated the price and performance of 99 models of   13) _____
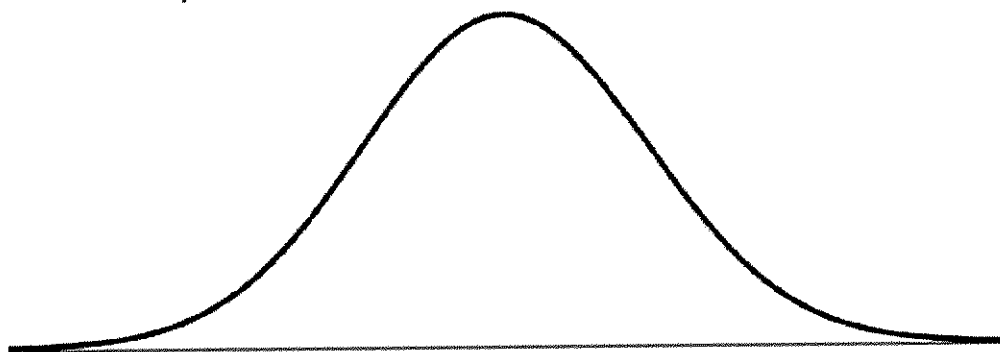cellphones. Computer output gives these summaries for the prices:

Min	Q1	Median	Q3	Max	MidRange	Mean	TrMean	SD
0	0	50	200	400	200	96.36	90.21	107.23

One of the manufacturers advertises a cellphone "economy–priced at only $31.95". Would you consider that to be a very low price? Explain.

14) **Exercising** Owners of an exercise gym believe that a Normal model is useful in projecting   14) _____
the number of clients who will exercise in their gym each week. They use a mean of 800
clients and a standard deviation of 90 clients.

a. Draw and clearly label this model.

b. What is the first quartile of the weekly number of clients? [Show work]

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