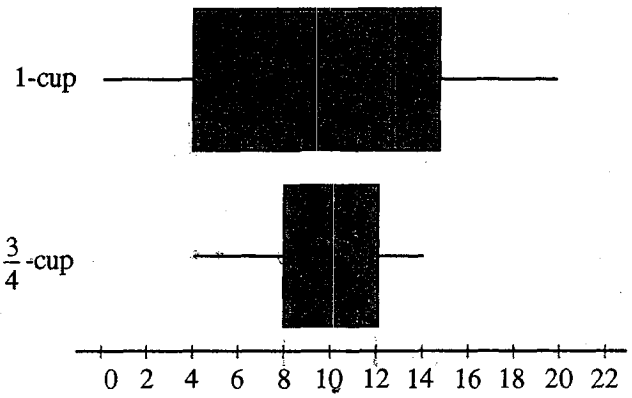
STATISTICS
SECTION II
Part A
Questions 1-5
Spend about 65 minutes on this part of the exam.
Percent of Section II score—75

Directions: Show all your work. Indicate clearly the methods you use, because you will be graded on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

1. To determine the amount of sugar in a typical serving of breakfast cereal, a student randomly selected 60 boxes of different types of cereal from the shelves of a large grocery store.

   The student noticed that the side panels of some of the cereal boxes showed sugar content based on one-cup servings, while others showed sugar content based on three-quarter-cup servings. Many of the cereal boxes with side panels that showed three-quarter-cup servings were ones that appealed to young children, and the student wondered whether there might be some difference in the sugar content of the cereals that showed different-size servings on their side panels. To investigate the question, the data were separated into two groups. One group consisted of 29 cereals that showed one-cup serving sizes; the other group consisted of 31 cereals that showed three-quarter-cup serving sizes. The boxplots shown below display sugar content (in grams) per serving of the cereals for each of the two serving sizes.



(a) Write a few sentences to compare the distributions of sugar content per serving for the two serving sizes of cereals.

The boxplot for the sugar content in a 1 cup serving size has a higher median than that of the boxplot for the sugar content in a 3/4-cup serving. The IQR for the 1 cup serving size boxplot is approximately 11 grams of sugar which is much larger than the IQR of 4 grams of sugar for the 3/4-cup serving size boxplot. The shape of the boxplot for the 3/4-cup serving size is roughly symmetrical while the shape of the 1-cup serving size boxplot is skewed left. Both boxplots have no outliers.

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