Review for Final Exam.   Statistics STA 2033

1. In a random sample of 250 full time students, 80% preferred to have three one-hour lectures per week rather than two 90-minute lectures. In a random sample of 500 part-time students, 50% said they preferred the three one-hour lectures schedule. The standard error for the difference between the two sample proportions is
A. .0011   B. .0338   C. .0553   D. .6000

2. In a randomly selected sample of 500 college students, 80% do not own laptop computers. The standard error of the sample proportion is 0.0179. Calculate an approximate 95% confidence interval for the proportion of all students who do not own a laptop computer.
A. (.746, .854)   B. (.782, .818)   C. (.764, .836)   D. None of the above

3) A random sample of 100 students had a mean grade point average (GPA) of 3.2 with a standard deviation of 0.2. The standard error of the sample mean in this case is 0.02. Calculate an approximate 95% confidence interval for the mean GPA for all students.

A. (2.8, 3.6)   B. (3.16, 3.24)   C. (3.18, 3.22)   D. None of the above

4). A random sample of 40 men drank an average of 20 cups of coffee per week during finals, while a sample of 30 women drank an average of 15 cups of coffee per week. The sample standard deviations were 6 cups for the men and 3 cups for the women. The standard error for the difference between the two sample means is 1.095. Calculate an approximate 95% confidence interval for the difference in average cups of coffee drunk (average for men minus the average for women).
A. (2.81, 7.19)   B. (3.02, 6.98)   C. (3.91, 6.10) D. None of the above

5) A randomly selected sample of $n =51$ men in Brazil had an average lifespan of 59 years. The standard deviation was 10 years and the standard error was 1.400. Calculate a 98% confidence interval for the average lifespan for all men in Brazil.
A. (55.6, 62.4)   B. (56.2, 61.8)
C. (35.0, 83.0)   D. None of the above

6)In a survey, students are asked how many hours they study in a typical week. A five-number summary of the responses is: 2, 9, 14, 20, 60. Which interval describes the number of hours spent studying in a typical week for about 50% of the students sampled?
A. 2 to 9   B. 9 to 14   C. 9 to 20   D. 14 to 20

7) Random samples from two age groups of brides (200 brides under 18 years and 100 brides at least twenty years old) showed that .50 (50%) of brides in the under 18 group were divorced after 15 years, while .40 (40%)of brides in the 20 or older age group were divorced after 15 years. The difference between the two proportions is .10, with a standard error of .0604. What is a 95% confidence interval for the difference between the population proportions who divorce (brides aged 18 or less −brides aged 20 or more)?
A. (-0.018, 0.218)   B. (-0.123, 0.023)   C. (-0.040, 0.160)   D. None of the above

8) Which one of the following summary statistics is not a measure of the variation (spread) in a data set?

A. median   B. standard deviation   C. range   D. interquartile range

9) A survey of randomly chosen adults found that 36 of the 63 women and 42 of the 73 men follow regular exercise programs. Construct a 95% confidence interval for the difference in the proportions of women and men who have regular exercise programs.

A) (-0.171, 0.163)   B) (0.373, 0.770)

C) (0.405, 0.738)   D) (-0.202, 0.770)

10) We have calculated a 95% confidence interval and would prefer for our next confidence interval to have a smaller margin of error without losing any confidence. In order to do this, we can

I. change the z^* value to a smaller number

II. take a larger sample

III. take a smaller sample

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

Other main topics:

1) For a list of data you need to know how to:

    a) Display the data (5-number summary, histogram, ……)

    b) Find mean, median, mode, ………

    c) Find spreads (range, IQR,……..)

2) Some Ideas about sampling methods.

3) Simple hypothesis testing.

4) Calculating and interpreting confidence intervals.

5) Use of correlation coefficient.

7) Use of normal Model.

8) Effects of adding or multiplying a constant to set of numerical values.

9) Relationship between Sample size, confidence level, margin of error, and confidence interval.

10) Finding a Score if the percentile is given and vice versa.