STATISTICS

Past papers
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Statistics 020 Past Papers

Chapter 3

If X~Bin (100,0.2), then$P(\mu-\sigma \leq X \leq \mu+ 2\ \sigma) \approx$

a) 0.8542
b) 0.2694
c) 0.2467
d) 0.4145
e) 0.8192

Answer: A

Chapter 4

Q1: If $X \sim \text{normal}(\mu, \sigma^2)$, and $P(X \leq \mu-5) = 0.1$, then

$$P(X \leq \mu + 5 \mid X \geq \mu-5)$$

a) 0.889
b) 0.020
c) Can not be determined
d) 1
e) 0.75

Answer: A

Q2: Tim goes to a popular restaurant that does not make any reservation for tables. It has been determined that the waiting times for a table are normally distributed with a mean of 18 minutes and standard deviation of 4 minutes. Tim says he will leave if he is not seated at a table within 26 minutes of arriving at the restaurant. The probability that time will leave without being seated equals:

a) 0.0228

b) 0.6700
c) 0.3300
d) 0.0410
e) 0.0668

Answer: A

Q3: A hospital specializes in treating overweight patients. These patients have weights that are independently, normally distirbuted with mean 200 kg and standard deviation 15 kg.the elevetor in the hopital will break if the total weight of people inside it exceeds 6060 kg. 30 patients enter the elevator.
The probability that the elevator breaks equals :

a) 0.7673
b) 0.6064
c) 0.2327
d) 0.1357
e) 0.0143

Answer: C

Q4: Let X_1 , X_2 ,..., X_6 ~normal (μ,10)and S^2 be the sample variance, the 90^{th} percentile for S^2 equals

a) 2.291
b) 1.145476
c) 22.141
d) 18.473
e) 0.8235

Answer: D

Chapter(5

Q1: In a random sample of 1000 studants, 70% prefer to study at the school campus. The standard error (standard devaition) of the ssamp;e proportion is:

a) 0.0126
b) 0.0137
c) 0.700
d) 0.0145
e) 0.300

Answer: D

Q2: Let $X_1, X_2,\ldots,X_6$ ~normal (20,5)and $Y_1, Y_2, \ldots, Y_6$ ~normal (20,5) be 2 independent samples. Let $\bar{X}$ and $\bar{Y}$ be the 2 sample means.
Let S_1 and S_2 be the 2 sample standard deviations.
The value of c for wich P($\bar{X}$ - $\bar{Y}$ ≤ c)= 0.9850 is:

a) 2.74
b) 0
c) 6.26
d) 2.80
e) 2.62

Answer: D

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Chapter 6

Q1: In hypothesis testing, a Type 2 error occurs when:

a) The null hypothesis is not rejected when the null hypothesis is true .
b) The null hypothesis is rejected when the null hypothesis is true.
c) The null hypothesis is not rejected when the alternative hypothesis is true.
d) The null hypothesis is rejected when the alternative hypothesis is true

e) The alternative hypothesis is not rejected when the alternative hypothesis is true.

Answer: C

Q2: A random sample of 8 observation was taken from a normal population. The sample mean is 70 and the sample standard deviation is 20. When testing at 5% singificance level H_0: μ=80 **vs.** H_1: μ ≠80 , we have:

a) The test statistic is t = -1.41 and we don't reject H_1
b) The test statistic is z =1.41 and we reject H_0
c) The test statistic is z = -1.41 and we don't reject
d) The test statistic is t = -1.41 and we reject H_0
e) The test statistic is t = -1.41 and we don't reject H_0

Answer: E

Chapter 7

Q1: A scientist wishes to estimate the average depth of a river. He wants to be 99% confident that the estimate is accurate within 2.1 cm. From a previous study, the standard deviation of the depths measured was 4.38 cm. The sample size the scientist needs is at least:

a) 26
b) 25
c) 29
d) 27
e) 28

Answer: C

Q2: If the 95% confidance interval for the population mean μ is (54.3 , 57.7), then the point estimate of μ is:

a) 54
b) 55
c) 56

d) 95

e) 1.7

Answer: C

Q3: All of the following increase the width of a confidance interval except:

A) Increased sample size.

B) Decreased sample size.

C) Increased variability.

D) Increased confidance level

E) Decreased significance level.

Answer: A

Q4: In a simple random survey of 89 studants of faculty of medicine at the university of Jordan, 73 said that principals of statistics was the mosts satisfying, most enjoable course thet had ever studied. A98% confidance interval estimate of the propotion of all faculty of medicine students who feel this way is:

A) 0.820 ± 0.041

B) 0.820 ± 0.095

C) 0.820 ± 0.84

D) 0.820 ± 0.223

E) 0.820 ± 0.004

Answer:B

Q5: The life time (age) in hours of a random sample of one of the batteries produced in Jordan gave the following summary:

Sample size	Sample Average	Sample Standard deviation
n = 9	$\bar{X}$ = 95	S = 3

A 98% confidence interval for the population standard deviation σ is:

a) (1.09 , 17.86)
b) (1.09 , 6.61)
c) (1.89 , 6.61)
d) (3.58 , 43.7)
e) (1.04 , 4.23)

Answer:C

Q6: The confidence level for a confidence interval for a mean is:

a) The probability the procedure provides an interval that covers the population mean.
b) The probability of making Type 1 error if the interval is used to test a null hypothesis about the population mean.
c) The probability that individuals in the population have values that fall into the interval.
d) The probability of making Type 2 error if the interval is used to test a null hypothesis about the population mean.
e) The probability the procedure provides an interval the covers the sample mean.

Answer: A

Q7: All of the following increase the width of confidence interval **except:**

a) Decreased sample size.
b) Increased variability.
c) Increased sample size.
d) Increased confidence level.
e) Decreased significance level.

Answer: C

Q8: Suppose a 95% confidence interval for the proportion of people who exercise regularly is (0.29 , 0.37). Which one of the following statements is **false** :

a) The sample proportion is 33%.
b) It is reasonable to say that more than 255 of people exercise regularly.
c) It is reasonable to say that less than 40% of people exercise regularly.

d) The hypothesis that 33% of people exercise regularly cannot be rejected.

e) It is reasonable to say that more than 40% of people exercise regularly.

Answer: E