Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	38 minutes	5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 14:34
This attempt took 38 minutes.

Question 1 — 0.5 / 0.5 pts

A company manufactures electronic components for laptops. Among them 5% failed in final inspection. If 240 components are inspected in one day, then what is the expected number that pass in one day?

- 226

220

225

228

Question 2

0.5 / 0.5 pts

Jobs arrive at a facility at an average rate of 5 in an 8 hour shift. The arrival of the jobs follows Poisson distribution. The average service time of a job on the facility is 40 minutes. The service time follows exponential distribution. Idle time (in hours) at the facility per shift will be

7/5

10/3

14/3

5/7

Question 3

0.5 / 0.5 pts

If a random variable X follows a Poisson distribution with parameter λ, what is the variance of X?

$\frac{1}{\lambda}$

λ^2

- ◉ λ
- ○ 2λ

Question 4

0.5 / 0.5 pts

Let the random variable ‘X’ follows normal distribution with mean 70 and standard deviation 13. What is the value of P(60<X<90)?

- ○ 0.8716
- ○ 0.1717
- ○ 0.1617
- ◉ 0.7176

Question 5

0.5 / 0.5 pts

For a standard normal variate, the value of mean is

- ◉ 0
- ○ None of these
- ○ infinite
- ○ 1

Question 6

0.5 / 0.5 pts

If X and Y are two random variables having joint density function f(x, y)= (6-x-y)/8 ; 0<x<2, 2<y<4. Find P(X=Y<3)

- 3/24
- 7/24
- 5/24 (selected)
- 9/24

Question 7

0.5 / 0.5 pts

If 1 – α = 0.90, then value of Zα/2 is

- 1.143
- 1.564
- 1.869
- 1.645 (selected)

Question 8

0.5 / 0.5 pts

An estimator is a random variable because it varies from:

- Population to population
- Sample to population
- Population to sample
- Sample to sample

Question 9

0.5 / 0.5 pts

Let T be the time that is needed for a specific task in a factory to be completed. In order to estimate the mean and variance of T, we observe a random sample T1,T2,⋯,T6. Thus, Ti's are i.i.d. and have the same distribution as T. . We obtain the following values (in minutes): 18,21,17,16,24,20. The sample mean, the sample variance, and the sample standard deviation for the observed sample are

- 19.33, 8.67, 2.94
- 19.22, 8.37, 2.94
- 19.22, 8.67, 2.84
- 19.22, 8.67, 2.94

Question 10

0.5 / 0.5 pts

The P-value is

- [x] the probability of getting a test statistic more extreme than the one you got assuming the null hypothesis is correct.
- [ ] the probability of rejecting the null hypothesis when it is true.
- [ ] the probability that the claim is true.
- [ ] the estimate of the population parameter given the sample statistic.

Quiz Score: **5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10 **Available** Feb 18 at 18:00 - Feb 19 at 23:59
Time Limit 60 Minutes

Instructions

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All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	33 minutes	4 out of 5

Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4** out of 5
Submitted Feb 19 at 13:54
This attempt took 33 minutes.

Question 1

0.5 / 0.5 pts

A coin is flipped 10 times, and the number of heads is recorded. What type of distribution does this represent?

- ○ Poisson Distribution
- ◉ Binomial Distribution
- ○ Exponential Distribution
- ○ Normal Distribution

Incorrect

Question 2

0 / 0.5 pts

In a school the probability that a student is absent on a particular day is 0.002. If there are 600 students then probability of 6 students absent on a particular day is _____

- ○ 0.025
- ○ 0.0024
- ○ 0.0016

- 0.0018

Incorrect

Question 3

0 / 0.5 pts

Let be poissonally distributed random variables which count the number of random events in a fixed space of time. Then which of the following statement(s) is/are false:

- All these events are mutually exclusive.
- All these events need not be independent.
- All these events are independent.
- Events occur at a constant average rate per unit time.

Question 4

0.5 / 0.5 pts

Which of the following is not concerned with the density function of continuous random variables?

- the range of the random variable lies on the x-axis.

- The area between a and b is the probability at b
- vertical coordinate is the probability density function.
- total area under the curve is 1

Question 5

0.5 / 0.5 pts

If X is a Gaussian (Normal) (μ, σ) random variable, the cumulative distribution of X is $F_X(x)$. The probability that X is in the interval (a, b] is

- $F_X(b)$
- $F_X(b) - F_X(a)$
- $F_X(a) - F_X(b)$
- $F_X(a)$

Question 6

0.5 / 0.5 pts

If the joint probability density function of the random variable(x, y) is given by

f(x,y) =2-x-y, 0≤x≤1 , 0≤y≤1 then E(X) is

- 1/12
- 5/12
- 6/12
- 3/12

Question 7

0.5 / 0.5 pts

What sample size is required if we want a 95% confidence interval estimate with a margin error of 8? Assume σ =25

- 46
- 38
- 44
- 32

Question 8

0.5 / 0.5 pts

A survey of 49 people revealed that the mean number of minutes a person talks on his or her wireless phone in one day in a particular locality is 26, with a standard deviation of 2.3. Give a 99% confidence interval for the average daily usage.

- (●) [25.15, 26.85]
- ( ) [25.14, 26.86]
- ( ) [25.08, 26.92]
- ( ) [25.17, 26.83]

Question 9

0.5 / 0.5 pts

In a random sample of 1000 students, $\hat{p} = 0.80$ (or 80%) were in favor of longer hours at the school library. The standard error of $\hat{p}$ (the sample proportion) is

- ( ) 0.800

- 0.160
- 0 .640
- 0 .013

Question 10

0.5 / 0.5 pts

The average time in years to get a postgraduate degree in computer science was compared for regular students and part time students. Random samples of 100 regular students of computer science majors and 100 part time computer science majors were taken. Choose the appropriate parameter(s) for this situation.

- One population proportion p
- Difference between two population proportions p1 − p2
- One population mean μ
- Difference between two population means μ1 − μ2

Quiz Score: **4** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
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- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	23 minutes	5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 14:34
This attempt took 23 minutes.

Question 1 — 0.5 / 0.5 pts

A department in the works has 10 machines which may need adjustment from time to time during the day . 3 machines are old, each having a probability of 1/11 of needing adjustment during the day. And 7 are new, having a corresponding probability of 1/21. What is the probability that on a particular day 2 old and no new machines need adjustment.

- 0.116

- 0.0216
- 0.016
- 0.2162

Question 2

0.5 / 0.5 pts

Suppose the daily sales of ice-creams in an ice cream parlor is Poisson variable with mean 3, then find the probability that the shopkeeper sells at most 7 ice daily .

- 0.9771
- 0.9661
- 0.9881
- 0.9623

Question 3

0.5 / 0.5 pts

If a random variable X follows a Poisson distribution with parameter λ, what is the variance of X?

- λ^2
- $\frac{1}{\lambda}$
- λ
- 2λ

Question 4

0.5 / 0.5 pts

Let X be Normally distributed with mean 8 and Standard deviation 4, Find $P\left(X \leq 5\right)$

- (selected) 0.2266
- 0.2626
- 0.2435
- 0.2345

Question 5

0.5 / 0.5 pts

The value of constant ‘e ‘ appearing in normal distribution is

- (selected) 2.7183
- 2.5185
- 2.7836
- 2.7138

Question 6

0.5 / 0.5 pts

Random variables X and Y have the joint probability density function

$$f_{X,Y}(x,y)=\begin{cases} ce^{-(2x+3y)} & x\geq 0, y\geq 0 \\ 0 & \text{otherwise} \end{cases}$$

The value of constant c is

- 2
- 4
- 8
- 6

Question 7

0.5 / 0.5 pts

What is the relationship between 95 and 90 percent of confidence interval for same sample

- 95 % interval will be wider
- Both interval will be of same width
- None of the above
- 90 % interval will be wider

Question 8

0.5 / 0.5 pts

By decreasing the sample size, the confidence interval becomes

- Narrower

- Fixed
- Wider
- All the above

Question 9

0.5 / 0.5 pts

One day Chlorine concentration in water samples from an apartment averages 11 mg/L and has a standard deviation 2 mg/L. Find the probability that average content in 131 samples will lie between 10.6 and 12.6 mg/L using the central limit theorem.

- 0.906
- 0.944
- 0.989
- 0.966

Question 10

0.5 / 0.5 pts

The type of test(one tailed or two tailed) is defined by an alternative hypothesis.

- True
- False

Quiz Score: **5** out of 5

Quiz 2

Due Feb 19 at 11:59pm **Points** 5 **Questions** 10
Available Feb 18 at 6pm - Feb 19 at 11:59pm **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	35 minutes	5 out of 5

ⓘ Correct answers will be available on Feb 20 at 6pm.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 1:47pm
This attempt took 35 minutes.

Question 1 — 0.5 / 0.5 pts

If a random variable X follows a binomial distribution with parameters n and p, what is the expected value of X?

- p/n
- np

- n(1-p)
- n/p

Question 2

0.5 / 0.5 pts

A book of 200 pages contains 200 misprinted. Estimate the probability that a given page contains at least 2 misprints

- 0.423
- 0.3243
- 0.29
- 0.2642

Question 3

0.5 / 0.5 pts

If a random variable X follows a Poisson distribution with parameter λ, what is the variance of X?

- λ^2
- $\frac{1}{\lambda}$
- 2λ
- λ

Question 4

0.5 / 0.5 pts

Let X be a normal random variable with mean zero and variance 9. If a = P (X > 3), then P (| X | ≤ 3) equals:

- (●) 1 - 2a
- ( ) 2a
- ( ) 1 - a
- ( ) a

Question 5

0.5 / 0.5 pts

The annual precipitation data of a city is normally distributed with mean and standard deviation as 1000 mm and 200 mm, respectively. The probability that the annual precipitation will be more than 1200 mm is

- ( ) 75 %
- ( ) 100 %
- (●) < 50 %
- ( ) 50 %

Question 6

0.5 / 0.5 pts

The probability density function(pdf) for two continuous random variables X and Y is given by

$$f(x,y) = \begin{cases} \frac{(2x-xy)}{2} & x>0, y>0 \,\&\, x+y<2 \\ 0 & otherwise \end{cases}$$

Find E(2X-3Y)

- None of these
- 21/15
- 18/15
- 14/15

Question 7

0.5 / 0.5 pts

Find the 99% confidence interval estimate if the sample mean $\overline{X}$ =0,the sample size n=121 and σ=11.

- -1.888941 to 1.888941
- -4.722354 to 4.722354
- -2.575829 to 2.575829
- -1.133365 to 1.133365

Question 8

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- (●) 20000
- ( ) 22000
- ( ) 40000
- ( ) 18000

Question 9

0.5 / 0.5 pts

In a random sample of 1000 students, $p\hat{}$ = 0.80 (or 80%) were in favor of longer hours at the school library. The standard error of $p\hat{}$ (the sample proportion) is

- ( ) 0 .640
- ( ) 0.160
- ( ) 0.800
- (●) 0 .013

Question 10

0.5 / 0.5 pts

1. If we accept a Null hypothesis, when it is false then this is an error of type _____

- BOTH
- II
- Can't be determined
- I

Quiz Score: **5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
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Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	34 minutes	5 out of 5

Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 13:47
This attempt took 34 minutes.

Question 1 — 0.5 / 0.5 pts

If a random variable X follows a binomial distribution with parameters n and p, what is the expected value of X?

- n(1-p)
- n/p

- (selected) np
- p/n

Question 2

0.5 / 0.5 pts

If X and Y are independent poisson variates such that P(X=1)=P(X=2) and P(Y=2)=P(Y=3). Find the variance of X - 2Y.

- 12
- (selected) 14
- 16
- 18

Question 3

0.5 / 0.5 pts

Consider a Poisson distribution for the tossing of an unbiased coin. The mean of the distribution is μ. The standard deviation of for this distribution is given by

- $\frac{1}{\mu}$
- μ^2
- μ
- (selected) $\sqrt{\mu}$

Question 4

0.5 / 0.5 pts

The value of constant ‘e ‘ appearing in normal distribution is

- (●) 2.7183
- ( ) 2.5185
- ( ) 2.7836
- ( ) 2.7138

Question 5

0.5 / 0.5 pts

A Normal distribution with mean μ=0 and Standard deviation σ =1 is

- ( ) Perfect Normal distribution
- (●) Standard Normal distribution.
- ( ) Regular Normal distribution
- ( ) Ideal Normal distribution

Question 6

0.5 / 0.5 pts

Let X and Y have joint probability density function , f (x. y) = 4xy for 0<x<1 and 0 <y<1.Find P(Y<X)

- (●) 1/2
- ( ) 0
- ( ) 2/3
- ( ) 1/6

Question 7

0.5 / 0.5 pts

Considering the sample size, the sampling distribution standard error decreases when

- ( ) margin of error increases
- ( ) Margin of error decreases
- ( ) Size of sample decreases
- (●) Size of sample increases

Question 8

0.5 / 0.5 pts

An estimator is a random variable because it varies from:

- (●) Sample to sample

- Population to population
- Sample to population
- Population to sample

Question 9

0.5 / 0.5 pts

Suppose we want to make a voters list for the general elections 2019 then we require _____

- Sampling error
- census
- simple error
- random error

Question 10

0.5 / 0.5 pts

The average time in years to get a postgraduate degree in computer science was compared for regular students and part time students. Random samples of 100 regular students of computer science majors and 100 part time computer science majors were taken. Choose the appropriate parameter(s) for this situation.

- Difference between two population proportions p1 − p2
- Difference between two population means μ1 − μ2

- One population mean μ
- One population proportion p

Quiz Score: **5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10 **Available** Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

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- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	41 minutes	5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 13:56
This attempt took 41 minutes.

Question 1

0.5 / 0.5 pts

The mean and variance of a binomial distribution are 3 and 3/4 then what is the value of $P(X \geq 2)$?

- ○ 0.5
- ○ 0.5492
- ○ 0.7492
- ◉ 0.9492

Question 2

0.5 / 0.5 pts

A computing system manager states that the rate of interruptions to the internet service is 0.2 per week. Find the probability of one interruption in 3 weeks using Poisson distribution.

- 0.4235
- 0.5678
- 0.1637
- 0.3292

Question 3

0.5 / 0.5 pts

For a Poisson variate X , 2P (X = 0) = P (X = 2). Then the SD of X is

- $\frac{1}{2}$
- $\sqrt{2}$
- $\sqrt{3}$
- $\frac{1}{4}$

Question 4

0.5 / 0.5 pts

Normal distribution is symmetric about

- Covariance
- Standard deviation

Variance

Mean

Question 5

0.5 / 0.5 pts

In a collection of 10,000 balls of 10 different colors the probability of presence of blue colored balls at least 1050 times is_____

0.0323

0.0465

0.012

0.423

Question 6

0.5 / 0.5 pts

If the joint probability density function of the random variable(x, y) is given by

f(x,y) =2, 0≤x≤y≤1 then fy(y) is

2y

y

3y

5y

Question 7

0.5 / 0.5 pts

Considering the sample size, the sampling distribution standard error decreases when

- margin of error increases
- (selected) Size of sample increases
- Size of sample decreases
- Margin of error decreases

Question 8

0.5 / 0.5 pts

A point estimator is defined as:

- the average of the sample values
- (selected) a single value that is the best estimate of an unknown population parameter
- the average of the population values
- a single value that is the best estimate of an unknown sample statistic

Question 9

0.5 / 0.5 pts

One day Chlorine concentration in water samples from an apartment averages 11 mg/L and has a standard deviation 2 mg/L. Find the probability that average content in 131 samples will lie between 10.6 and 12.6 mg/L using the central limit theorem.

- 0.966
- 0.944
- (selected) 0.989
- 0.906

Question 10

0.5 / 0.5 pts

If you want to test the null hypothesis that the mean is 100 versus the alternative that it is greater than 100 and you get a sample mean of 90, which is true?

- Always reject the null hypothesis
- Never reject the null hypothesis
- Reject the null if n > 30, otherwise fail to reject
- Cannot say anything, because the standard deviation and the sample size are needed

Quiz Score: **5** out of 5

9/16

7/16

Question 2

0.5 / 0.5 pts

Jobs arrive at a facility at an average rate of 5 in an 8 hour shift. The arrival of the jobs follows Poisson distribution. The average service time of a job on the facility is 40 minutes. The service time follows exponential distribution. Idle time (in hours) at the facility per shift will be

5/7

7/5

14/3

10/3

Incorrect

Question 3

0 / 0.5 pts

For a Poisson variate X , P (X = 3) =1/6, P (X = 2).=1/3, thenP(X=0) is

$e^{-\frac{3}{2}}$

$e^{-\frac{2}{3}}$

$e^{-\frac{5}{3}}$

- $e^{-\frac{1}{3}}$

Question 4

0.5 / 0.5 pts

The annual precipitation data of a city is normally distributed with mean and standard deviation as 1000 mm and 200 mm, respectively. The probability that the annual precipitation will be more than 1200 mm is

- < 50 %
- 50 %
- 75 %
- 100 %

Question 5

0.5 / 0.5 pts

Suppose X is normally distributed with mean 30,SD 5 .then the probability of P(26≤X ≤ 40) is

- 0.4772
- None of these
- 0.7653
- 0.2881

Question 6

0.5 / 0.5 pts

If two random variables X and Y have the joint density function

$$f_{X,Y}(x,y) = \begin{cases} \frac{6}{5}(x^2+y) & \text{for } 0 \le x \le 1,\ 0 \le y \le 1 \\ 0 & \text{otherwise} \end{cases},$$

the probability that $0.2 < X < 0.5$ is

- 0.2686
- 0.8622
- 0.2668
- 0.2268

Incorrect

Question 7

0 / 0.5 pts

If the point estimate is 8 and the margin of error is 4 then confidence interval is

- 4 to 12
- 2 to 8
- 3 to 13

5 to 15

Question 8

0.5 / 0.5 pts

The process of making estimates about the population parameter from a sample is called

- Statistical Independence
- Statistical Decision
- Statistical Hypothesis
- Statistical Inference

Question 9

0.5 / 0.5 pts

A randomly selected sample of 1,000 college students was asked whether they had ever used the drug Ecstasy. Sixteen percent (16% or 0.16) of the 1,000 students surveyed said they had. Which one of the following statements about the number 0.16 is correct?

- It is a sample proportion.
- It is a population proportion.
- It is a randomly chosen number.
- It is a margin of error.

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All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	45 minutes	4.5 out of 5

Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4.5** out of 5
Submitted Feb 19 at 13:23
This attempt took 45 minutes.

Question 1 — 0.5 / 0.5 pts

In transmission of signals, either correctly transmitted and transmission with noise are equally likely to occur. The probability of obtaining at most one transmission with noise in five transmissions is

- 1/32

- 1/9
- 3/16
- 1/16

Question 2

0.5 / 0.5 pts

For a Poisson variate X , 2P (X = 0) = P (X = 2). Then the SD of X is

- $\frac{1}{2}$
- $\sqrt{3}$
- $\frac{1}{4}$
- $\sqrt{2}$

Question 3

0.5 / 0.5 pts

Consider a Poisson distribution for the tossing of an unbiased coin. The mean of the distribution is μ. The standard deviation of for this distribution is given by

- μ
- $\sqrt{\mu}$

- $\frac{1}{\mu}$
- μ^2

Question 4

0.5 / 0.5 pts

In a collection of 10,000 balls of 10 different colors the probability of presence of blue colored balls at least 1050 times is_____

- 0.0465
- 0.012
- 0.0323
- 0.423

Question 5

0.5 / 0.5 pts

The annual precipitation data of a city is normally distributed with mean and standard deviation as 1000 mm and 200 mm, respectively. The probability that the annual precipitation will be more than 1200 mm is

- 75 %
- < 50 %
- 100 %

50 %

Question 6

0.5 / 0.5 pts

If X and Y are discrete random variables with the distribution

$$f(x,y) = \begin{cases} k(2x+y) & x = 1,2 \ \& \ y = 1,2 \\ 0 & otherwise \end{cases}$$

Then the marginal probability function of x is

- $\frac{x+3}{9}$
- None of these
- $\frac{4x+3}{18}$
- $\frac{4x+3}{9}$

Question 7

0.5 / 0.5 pts

From a large lot of oranges a random sample of 700 oranges was drawn and 60 were found to be bad. Then the confidence interval at 2% level of significance for the percentage of bad oranges in this lot is_____

- None of these
- (-0.13265,-0.06734)

(0.01133,0.03265)

(0.06734, 0.13265)

Question 8

0.5 / 0.5 pts

1. What is the best description of a point estimate?

the margin of error used to estimate a parameter

a sample statistic used to estimate a parameter

All of the above

any value from the sample used to estimate a parameter

Question 9

0.5 / 0.5 pts

Find the standard error of population proportion p for sampling with replacement. The population proportion is 0.157 and size of sample is 200.

0.5

0.375

0.225

0.026

Incorrect

Question 10

0 / 0.5 pts

A manager of the credit department for an oil company would like to determine whether the mean monthly balance of credit card holders is equal to $75. An auditor selects a random sample of 100 accounts and finds that the mean owed is $83.40 with a sample standard deviation of $23.65. If you were to conduct a test to determine whether the auditor should conclude that there is evidence that the mean balance is different from $75, which test would you use?

- ○ t test of population mean
- ◉ t test of a population proportion
- ○ Z test of a population proportion
- ○ Z test of a population mean

Quiz Score: **4.5** out of 5

Quiz 2

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All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	31 minutes	4.5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4.5** out of 5
Submitted Feb 19 at 12:46
This attempt took 31 minutes.

Question 1 — 0.5 / 0.5 pts

If X follows Binomial distribution with E(X) = 6 and Var(X) = 4.2 then p =

- 0.6
- 0.7
- 0.4

- 0.3

Question 2

0.5 / 0.5 pts

If the SD of Poisson distribution is √2 the probability for x=2 is

- e^2
- $\frac{2}{e^2}$
- $\frac{2}{e}$
- $\frac{2}{e^3}$

Question 3

0.5 / 0.5 pts

For a Poisson variate X , P (X = 1) = P (X = 2). The variance of X is:

- 1
- 2
- 4
- 3

Question 4

0.5 / 0.5 pts

Suppose that internet usage in a certain area follows normal distribution with mean 80 hours per week and standard deviation 7 hours per week. The people who are using the internet above 89 hours per week and below 95 hours per week have the possibility of getting mild migraine headaches, what percent of the population in that area will be affected by migraine headaches?

- 0.5%
- 8%
- 2%
- 18%

Question 5

0.5 / 0.5 pts

For a standard normal variate, the value of mean is

- None of these
- 1
- infinite
- 0

Incorrect

Question 6

0 / 0.5 pts

A joint probability density function of the random variable x, y and z is

F(x,y,z) = 8xyz, 0 < x, y, z < 1 then find P (x < y < z). (up to 2 places)

- 0.14 - 0.17
- 0.12 - 0.14
- 0.13 - 0.15
- 0.16 - 0.18

Question 7

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- 22000
- 18000
- 20000
- 40000

Question 8

0.5 / 0.5 pts

Find the 99% confidence interval estimate if the sample mean $\overline{X}$ =0,the sample size n=121 and σ=11.

- -4.722354 to 4.722354
- -2.575829 to 2.575829

- -1.888941 to 1.888941
- -1.133365 to 1.133365

Question 9

0.5 / 0.5 pts

In a survey, it is noticed that the mean age of the person experienced heart attack is 34 years with standard deviation 15 years. If we take a sample of 100 persons then what the probability that the sample mean age of persons experienced heart attack is more than 32 years.

- 0.8842
- 0.9082
- 0.7282
- None of these

Question 10

0.5 / 0.5 pts

What is the p-value in hypothesis testing?

- None of these
- The p-value is the probability of observing a sample result that is not as extreme as the one observed, assuming the null hypothesis is false.

The p-value is the probability of observing a sample result that is at least as extreme as the one observed, assuming the null hypothesis is true.

The p-value is the probability of observing a sample result that is exactly as extreme as the one observed, assuming the null hypothesis is true.

Quiz Score: **4.5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	50 minutes	4.5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4.5** out of 5
Submitted Feb 19 at 13:51
This attempt took 50 minutes.

Question 1 — 0.5 / 0.5 pts

In a binomial distribution, the mean is 4 and variance is 3. Then its mode is

- (●) 4
- ( ) 3
- ( ) 6

5

Question 2

0.5 / 0.5 pts

Suppose the daily sales of ice-creams in an ice cream parlor is Poisson variable with mean 3, then find the probability that the shopkeeper sells at most 7 ice daily .

- 0.9661
- 0.9881
- 0.9771
- 0.9623

Question 3

0.5 / 0.5 pts

In town, 10 accidents take place in the span of 50 days. Assuming that the number of accidents follows Poisson distribution, the probability that there will be 3 or more accidents on a day is _____

- 0.1002
- 0.0012
- 0.3421
- 0.2102

Question 4

0.5 / 0.5 pts

If X is N(3,4) Find k such that P (| X-3 | > k)=0.05

- 4.92
- (•) 3.92
- 2.92
- 1.92

Question 5

0.5 / 0.5 pts

Normal distribution is symmetric about

- Variance
- Covariance
- (•) Mean
- Standard deviation

Incorrect

Question 6

0 / 0.5 pts

If X and Y are two random variables having joint density function f(x, y)=(6-x-y)/8 ; 0<x<2, 2<y<4. Find P(X=Y<3)

- 5/24

- [x] 7/24
- [ ] 9/24
- [ ] 3/24

Question 7

0.5 / 0.5 pts

A survey is conducted on 1300 students in a school to find the proportion of students who are interested in taking a music course. The upper and lower limits are 0.746 and 0.582. Calculate the point estimate and margin of error.

- [ ] 0.264 and 0.482
- [x] 0.664 and 0.082
- [ ] 0.464 and 0.282
- [ ] 0.364 and 0.382

Question 8

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- [ ] 18000
- [x] 20000
- [ ] 22000

40000

Question 9

0.5 / 0.5 pts

Suppose we want to make a voters list for the general elections 2019 then we require _____

- random error
- census
- Sampling error
- simple error

Question 10

0.5 / 0.5 pts

1. If we accept a Null hypothesis, when it is false then this is an error of type _____

- I
- II
- BOTH
- Can't be determined

Quiz Score: **4.5** out of 5

Question 1

0.5 pts

A man makes attempts to hit the target. The probability of hitting the target is 3/5.Then the probability that A hits the target exactly 2 times in 5 attempts is

- (●) 144/625
- ( ) 216/625
- ( ) 72/3125
- ( ) 144/3125

Question 2

0.5 pts

A computing system manager states that the rate of interruptions to the internet service is 0.2 per week. Find the probability of one interruption in 3 weeks using Poisson distribution.

- (●) 0.3292
- ( ) 0.1637
- ( ) 0.4235
- ( ) 0.5678

Question 3

0.5 pts

In a school the probability that a student is absent on a particular day is 0.002. If there are 600 students then probability of 6 students absent on a particular day is _____

- ○ 0.0018
- ○ 0.025
- ○ 0.0024
- ◉ 0.0016

Incorrect

Question 3

0 / 0.5 pts

In a school the probability that a student is absent on a particular day is 0.002. If there are 600 students then probability of 6 students absent on a particular day is _____

- ○ 0.0018
- ○ 0.025
- ○ 0.0024
- ◉ 0.0016

Question 4 — 0.5 pts

Let X be a random variable which represents the length of time that a Laptop will work before it needs charging . Assume X is normally distributed with variance 225 hrs and mean 100 hrs . If $P(X<b)=0.10$ then b is equal to

- (●) 80.77
- ( ) None of these
- ( ) 92.44
- ( ) 84.33

Question 5 — 0.5 pts

Which of the following is not concerned with the density function of continuous random variables?

- (●) The area between a and b is the probability at b
- ( ) the range of the random variable lies on the x-axis.
- ( ) vertical coordinate is the probability density function.
- ( ) total area under the curve is 1

Question 6 — 0.5 pts

If X and Y are independent, the cumulative distribution function Fx,y(x,y) is equal to

- ○ P(X≤x) - P(Y≤x)
- ◉ Fx(x).Fy(y)
- ○ P(X≤x) +P(Y≤y)
- ○ Fx(x)+Fy(y)

Question 7 — 0.5 pts

The critical value of normal standard variable is 0.95 and the standard error of specific statistic is 2.5 then margin of error is

- ◉ 2.375
- ○ 4.325
- ○ 5.325
- ○ 3.325

Question 8 — 0.5 pts

From a large lot of oranges a random sample of 700 oranges was drawn and 60 were found to be bad. Then the confidence interval at 2% level of significance for the percentage of bad oranges in this lot is_____

- (●) (0.06734, 0.13265)
- ( ) None of these
- ( ) (-0.13265,-0.06734)
- ( ) (0.01133,0.03265)

Question 9 — 0.5 pts

Suppose we want to make a voters list for the general elections 2019 then we require _____

- ( ) simple error
- ( ) random error
- ( ) Sampling error
- (●) census

Question 10

0.5 pts

The range of Level of Significance lies between _____

- ○ 0 and ∞
- ○ -∞ and ∞
- ○ -∞ and 0
- ◉ 0 and 1

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	31 minutes	4.5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4.5** out of 5
Submitted Feb 19 at 12:46
This attempt took 31 minutes.

Question 1 — 0.5 / 0.5 pts

If X follows Binomial distribution with E(X) = 6 and Var(X) = 4.2 then p =

- 0.6
- 0.7
- 0.4

- 0.3

Question 2

0.5 / 0.5 pts

If the SD of Poisson distribution is √2 the probability for x=2 is

- e^2
- $\frac{2}{e^2}$
- $\frac{2}{e}$
- $\frac{2}{e^3}$

Question 3

0.5 / 0.5 pts

For a Poisson variate X , P (X = 1) = P (X = 2). The variance of X is:

- 1
- 2
- 4
- 3

Question 4

0.5 / 0.5 pts

Suppose that internet usage in a certain area follows normal distribution with mean 80 hours per week and standard deviation 7 hours per week. The people who are using the internet above 89 hours per week and below 95 hours per week have the possibility of getting mild migraine headaches, what percent of the population in that area will be affected by migraine headaches?

- 0.5%
- 8%
- 2%
- 18%

Question 5

0.5 / 0.5 pts

For a standard normal variate, the value of mean is

- None of these
- 1
- infinite
- 0

Incorrect

Question 6

0 / 0.5 pts

A joint probability density function of the random variable x, y and z is

F(x,y,z) = 8xyz, 0 < x, y, z < 1 then find P (x < y < z). (up to 2 places)

- 0.14 - 0.17
- 0.12 - 0.14
- 0.13 - 0.15
- 0.16 - 0.18

Question 7

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- 22000
- 18000
- 20000
- 40000

Question 8

0.5 / 0.5 pts

Find the 99% confidence interval estimate if the sample mean $\overline{X}$ =0,the sample size n=121 and σ=11.

- -4.722354 to 4.722354
- -2.575829 to 2.575829

- -1.888941 to 1.888941
- -1.133365 to 1.133365

Question 9

0.5 / 0.5 pts

In a survey, it is noticed that the mean age of the person experienced heart attack is 34 years with standard deviation 15 years. If we take a sample of 100 persons then what the probability that the sample mean age of persons experienced heart attack is more than 32 years.

- 0.8842
- 0.9082
- 0.7282
- None of these

Question 10

0.5 / 0.5 pts

What is the p-value in hypothesis testing?

- None of these
- The p-value is the probability of observing a sample result that is not as extreme as the one observed, assuming the null hypothesis is false.

The p-value is the probability of observing a sample result that is at least as extreme as the one observed, assuming the null hypothesis is true.

The p-value is the probability of observing a sample result that is exactly as extreme as the one observed, assuming the null hypothesis is true.

Quiz Score: **4.5** out of 5

Question 1
0.5 / 0.5 pts
A binomial distribution may be approximated by a Poisson provided

n is small and p is large
both n and p are large
n is large and p is small CORRECT
both n and p are small

Question 2
0 / 0.5 pts
In a school the probability that a student is absent on a particular day is 0.002. If there are 600 students then probability of 6 students absent on a particular day is __

0.0024
0.0018
0.0016 INCORRECT
0.025
=>N=600, X=6, p=0.002, Lambda=np=600*0.002=1.2
Question 3
0 / 0.5 pts
Let be poissonally distributed random variables which count the number of random events in a fixed space of time. Then which of the following statement(s) is/are false:

All these events need not be independent.
All these events are mutually exclusive. INCORRECT
All these events are independent.
Events occur at a constant average rate per unit time.

Question 4
0.5 / 0.5 pts
Let X be a random variable which represents the length of time that a Laptop will work before it needs charging . Assume X is normally distributed with variance 225 hrs and mean 100 hrs . If P(X<b)=0.10 then b is equal to

84.33
None of these
80.77 CORRECT
92.44

Question 5
0.5 / 0.5 pts
In a normal distribution, what is the proportion of the data that lies within 1 standard deviation of the mean?

About 95%
About 68% CORRECT
About 50%
About 99.7%

Question 6
0 / 0.5 pts

If X and Y are discrete random variables with the distribution

Capture 5.PNG

Then the marginal probability function of x is

a.
b.
c.
d. None of these INCORRECT

Question 7
0.5 / 0.5 pts
If the point estimate is 8 and the margin of error is 4 then confidence interval is

2 to 8
4 to 12 CORRECT
3 to 13
5 to 15

Question 8
0.5 / 0.5 pts
What sample size is required if we want a 95% confidence interval estimate with a margin error of 8? Assume
□
=25

32
38 CORRECT
46
44

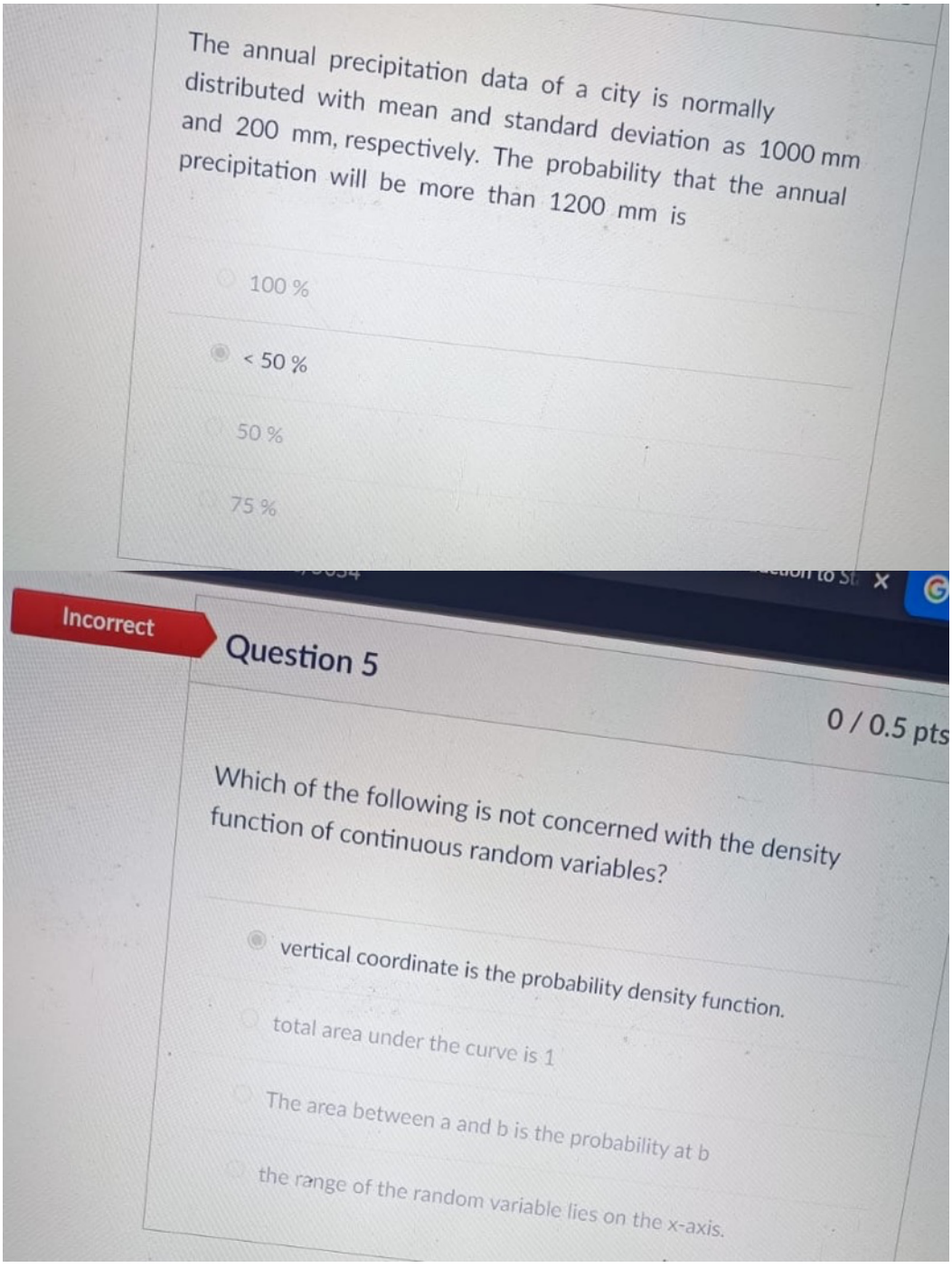
Question 9
0.5 / 0.5 pts
In a random sample of 1000 students, pˆ = 0.80 (or 80%) were in favor of longer hours at the school library. The standard error of pˆ (the sample proportion) is

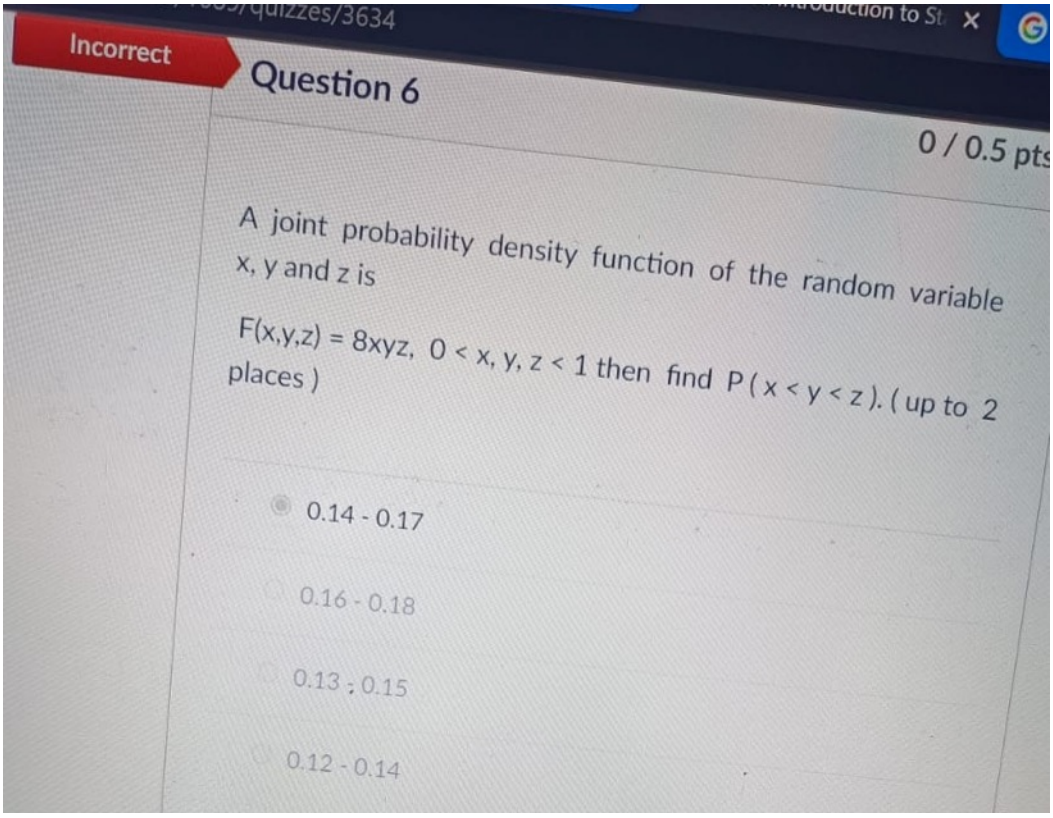
0 .640
0.800
0.160
0 .013 CORRECT

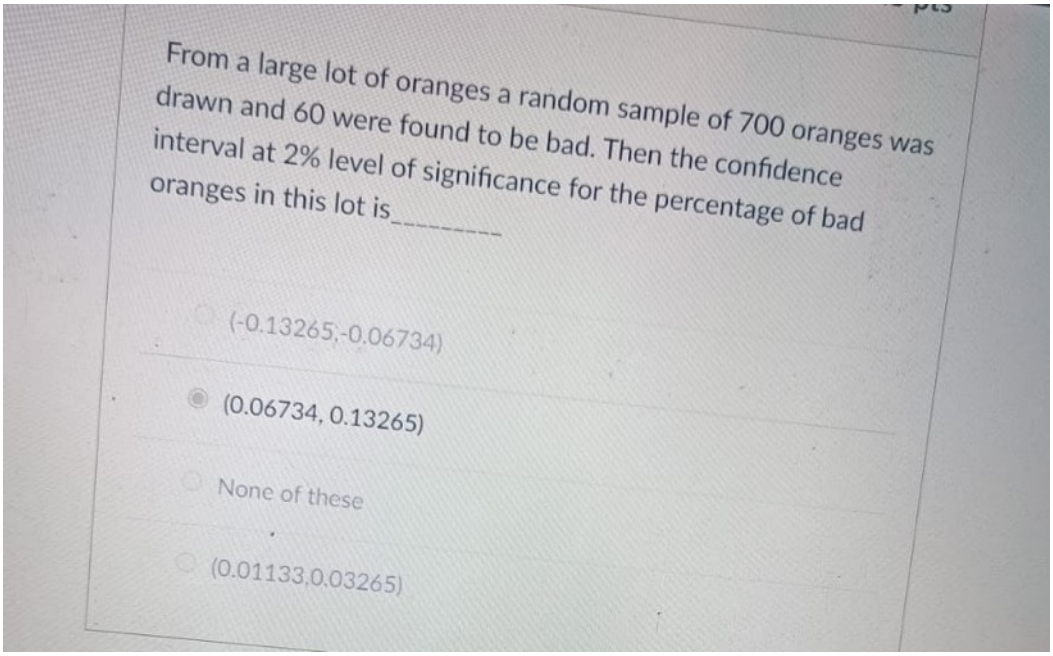
IncorrectQuestion 10
0 / 0.5 pts
A manager of the credit department for an oil company would like to determine whether the mean monthly balance of credit card holders is equal to $75. An auditor selects a random sample of 100 accounts and finds that the mean owed is $83.40 with a sample standard deviation of $23.65. If you were to conduct a test to determine whether the auditor should conclude that there is evidence that the mean balance is different from $75, which test would you use?

Z test of a population proportion
t test of a population proportion
Z test of a population mean

t test of population mean INCORRECT




quizzes/3634
Incorrect
Question 6
0 / 0.5 pts
A joint probability density function of the random variable x, y and z is
F(x,y,z) = 8xyz, 0 < x, y, z < 1 then find P (x < y < z). (up to 2 places)
0.14 - 0.17
0.16 - 0.18
0.13 : 0.15
0.12 - 0.14


From a large lot of oranges a random sample of 700 oranges was drawn and 60 were found to be bad. Then the confidence interval at 2% level of significance for the percentage of bad oranges in this lot is_____
(-0.13265,-0.06734)
(0.06734, 0.13265)
None of these
(0.01133,0.03265)

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- 40000
- 22000
- 18000
- 20000

0.5 pts

Random samples of size 100 are drawn from a population with mean 100 and standard deviation 25. what is the standard deviation of sample mean?

- 1.5
- 3.5
- 4.5
- 2.5

Question 10

0.5 / 0.5 pts

The rejection probability of Null Hypothesis when it is true is called as?

- Level of Confidence
- Level of significance
- None of these
- Level of margin

Question 2

If a random variable X follows a Poisson distribution with parameter λ, what is the expected value of X?

- $\frac{1}{\lambda}$
- λ
- 2λ
- λ^2

In town, 10 accidents take place in the span of 50 days. Assuming that the number of accidents follows Poisson distribution, the probability that there will be 3 or more accidents on a day is _____

- 0.1002
- 0.2102
- 0.3421
- 0.0012

Question 5

In a collection of 10,000 balls of 10 different colors the probability of presence of blue colored balls at least 1050 times is_____

- 0.0323
- 0.012
- 0.423
- 0.0465 (selected)

Question 6

If the joint probability density function of the random variable(x, y) is given by

f(x,y) =2, 0≤x≤y≤1 then fy(y) is

- 2y (selected)
- 3y
- 5y
- y

Question 7

Find the 99% confidence interval estimate if the sample mean $\overline{X}$ =0,the sample size n=121 and σ=11.

- -1.133365 to 1.133365
- -2.575829 to 2.575829
- -1.888941 to 1.888941
- -4.722354 to 4.722354

0.5 / 0.5 pts

Question 8

If the point estimate is 8 and the margin of error is 4 then confidence interval is

- 4 to 12
- 3 to 13
- 2 to 8
- 5 to 15

0.5 / 0.5 pts

In a survey, it is noticed that the mean age of the person experienced heart attack is 34 years with standard deviation 15 years. If we take a sample of 100 persons then what the probability that the sample mean age of persons experienced heart attack is more than 32 years.

- (●) 0.9082
- ( ) 0.8842
- ( ) None of these
- ( ) 0.7282

Question 10

0.5 / 0.5 pts

A statement made about a population for testing purposes is called

- ( ) Level of Significance
- (●) Hypothesis
- ( ) Statistics
- ( ) Type I error

Question 1

0.5 / 0.5 pts

If a random variable X follows a binomial distribution with parameters n and p, what is the probability of getting exactly k success in n trials?

- kp^n
- $n_{C_k} p^k (1-p)^{n-k}$
- $(n-k)p^k$
- $p^k(1-p)^n$

Question 2

0.5 / 0.5 pts

Which of the following distribution is appropriate for a count events of interest occur randomly, independently of one another, rarely?

- **Poisson Distribution**
- Exponential Distribution
- Binomial Distribution
- Uniform Distribution

Question 4

0.5 / 0.5 pts

Find the standard normal variant z value corresponding to the normal variable X (500, 100) sample value 428

- (●) -0.72
- ( ) 0.72
- ( ) -1.28
- ( ) 1.28

Question 3

0.5 / 0.5 pts

For a Poisson variate X, $2P(X = 0) = P(X = 2)$. Then the SD of X is

- ( ) $\sqrt{3}$
- ( ) $\frac{1}{4}$
- (●) $\sqrt{2}$
- ( ) $\frac{1}{2}$

Question 4

0.5 / 0.5 pts

Question 5

0.5 / 0.5 pts

What is the probability that the random variable following normal distribution will take values between $\mu + 2\sigma$ to $\mu - 2\sigma$?

- (●) **About 95%**
- ( ) About 68%
- ( ) About 99.75%
- ( ) Can't say

Question 6

0.5 / 0.5 pts

A fair and an unfair coin withP(T)=3/4 are tossed three times simultaneously . Let X be a random variable which denote the number of heads shown by fair coin and Y denotes the number of heads shown by unfair coin then P(X=Y) is _____

- ( ) 1/2
- ( ) None of these
- (●) **136/512**
- ( ) 128/512

Question 7

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- 40000
- 18000
- **20000**
- 22000

Question 8

0.5 / 0.5 pts

What sample size is required if we want a 95% confidence interval estimate with a margin error of 8? Assume σ =25

- 44
- **38**
- 32
- 46

Question 9

0.5 / 0.5 pts

In a survey, it is noticed that the mean age of the person experienced heart attack is 34 years with standard deviation 15 years. If we take a sample of 100 persons then what the probability that the sample mean age of persons experienced heart attack is more than 32 years.

- (●) 0.9082
- ( ) None of these
- ( ) 0.8842
- ( ) 0.7282

Question 10

0.5 / 0.5 pts

The point where the Null Hypothesis gets rejected is called as?

- ( ) Significant value
- ( ) Acceptance value
- (●) **Critical value**
- ( ) Rejection value

Incorrect

Question 6

A joint probability density function of the random variable x, y and z is F(x,y,z) = 8xyz, 0 < x, y, z < 1 then find P (x < y < z). (up to 2 places)

- 0.12 - 0.14
- 0.13 - 0.15
- 0.14 - 0.17
- 0.16 - 0.18

Incorrect

Question 10

Which of the following is correct?

- Both Null Hypothesis and Alternative Hypothesis are tested
- Both Null Hypothesis and Alternative Hypothesis are not tested
- Null Hypothesis is tested but Alternative Hypothesis is not tested
- Null Hypothesis is not tested but Alternative Hypothesis is tested

Question 1

0.5 / 0.5 pts

A binomial distribution may be approximated by a Poisson provided

- n is small and p is large
- both n and p are small
- **n is large and p is small**
- both n and p are large

Question 2

0.5 / 0.5 pts

For a Poisson variate X, $2P(X = 0) = P(X = 2)$. Then the SD of X is

- $\sqrt{3}$
- $\frac{1}{2}$
- $\frac{1}{4}$
- **$\sqrt{2}$**

Question 3

0.5 / 0.5 pts

Given that X has a poisson distribution with Mean = 1.1, What is the probability that X=0?

- 0
- 0.3343
- **0.3328**
- 3.3328

Question 4

0.5 / 0.5 pts

Let the random variable 'X' follows normal distribution with mean 70 and standard deviation 13. What is the value of P(60<X<90)?

- 0.8716
- 0.1617
- 0.1717
- **0.7176**

Question 5

0.5 / 0.5 pts

Let X be Normally distributed with mean 8 and Standard deviation 4, Find $P(X \leq 5)$

- 0.2345
- **0.2266**
- 0.2626
- 0.2435

Question 6

0.5 / 0.5 pts

If X and Y are discrete random variables with the distribution

$$f(x,y) = \begin{cases} k(2x+y) & x = 1,2 \ \& \ y = 1,2 \\ 0 & otherwise \end{cases}$$

Then the marginal probability function of x is

- None of these
- $\frac{4x+3}{9}$
- **$\frac{4x+3}{18}$** . You selected this answer.
- $\frac{x+3}{9}$

Question 7

0.5 / 0.5 pts

By decreasing the sample size, the confidence interval becomes

- All the above
- Narrower
- **Wider**
- Fixed

Question 8

0.5 / 0.5 pts

Which of the following statements are correct?

- a point estimate is an unbiased estimator if its standard deviation is the same as the actual value of the population standard deviation
- All of the above statements are correct
- **a point estimate is a single value estimate of the value of a population parameter**
- a point estimate is an estimate of the range of a population parameter

Question 9

0.5 / 0.5 pts

If the maximum error with probability 0.95 is 1.2 and the standard deviation of population is 10, then sample size is

- 264
- 267
- 262
- 260

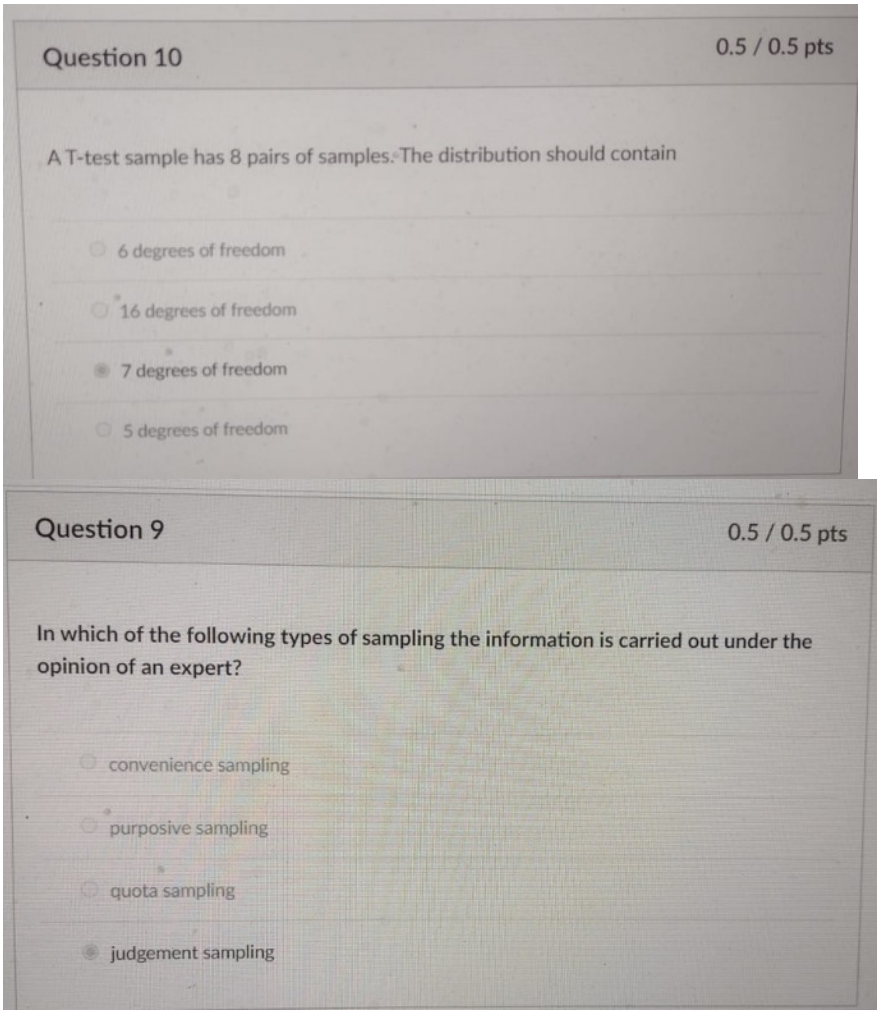
Question 10

0.5 / 0.5 pts

If you want to test the null hypothesis that the mean is 100 versus the alternative that it is greater than 100 and you get a sample mean of 90, which is true?

- Cannot say anything, because the standard deviation and the sample size are needed
- Reject the null if n > 30, otherwise fail to reject
- Never reject the null hypothesis
- Always reject the null hypothesis

Cannot say anything, because the standard deviation and the sample size are needed. You selected this answer.



Question 8

0 / 0.5 pts

A point estimator is defined as:

- the average of the sample values
- a single value that is the best estimate of an unknown population parameter
- the average of the population values
- a single value that is the best estimate of an unknown sample statistic

Question 7

0.5 / 0.5 pts

Which of the following statements are correct?

- a point estimate is an estimate of the range of a population parameter
- a point estimate is a single value estimate of the value of a population parameter
- a point estimate is an unbiased estimator if its standard deviation is the same as the actual value of the population standard deviation
- All of the above statements are correct

Question 6

0.5 / 0.5 pts

For f(x) to be discrete probability distribution f(x) should satisfy the following conditions:

- $f(x) \geq 0 \,\&\, \sum_x f(x) < 1$
- $f(x) \leq 0 \,\&\, \sum_x f(x) = 1$
- $f(x) \leq 0 \& \sum_x f(x) > 1$
- $f(x) \geq 0 \,\&\, \sum_x f(x) = 1$

Question 5

0.5 / 0.5 pts

The area to the left of z = 2.38 is

- 0.9091
- (•) 0.9913
- 0.0087
- 0.1876

Question 4

0.5 / 0.5 pts

When .....Binomial distribution be approximated by Normal distribution

- (•) $n \to \infty$
- $n \to 0$
- $n \to 1$
- None of these

Question 3

0.5 / 0.5 pts

Which of the following distribution is appropriate for a count events of interest occur randomly, independently of one another, rarely?

- Exponential Distribution
- (•) Poisson Distribution
- Binomial Distribution
- Uniform Distribution

Question 2

0.5 / 0.5 pts

For a Poisson variate X , P (X = 1) = P (X = 2). The variance of X is:

- 1
- 2
- 4
- 3

Question 1

0.5 / 0.5 pts

In a true-false examination Roshan guessed all the answers. If there are 6 questions then what is the probability that Roshan answers at most 3 answers correctly?

- 0.344
- 0.5
- 0.656
- 0.9393

Question 1

0.5 / 0.5 pts

A department in the works has 10 machines which may need adjustment from time to time during the day . 3 machines are old, each having a probability of 1/11 of needing adjustment during the day. And 7 are new, having a corresponding probability of 1/21. What is the probability that on a particular day 2 old and no new machines need adjustment.

- 0.0216
- 0.116
- 0.2162
- 0.016

Question 2

0.5 / 0.5 pts

For a Poisson variate X , P (X = 3) =1/6, P (X = 2)=1/3, thenP(X=0) is

- $e^{-\frac{1}{2}}$
- $e^{-\frac{1}{3}}$
- $e^{\frac{1}{3}}$
- $e^{\frac{1}{2}}$

Question 3

0.5 / 0.5 pts

Which among the following is CORRECT.

- Hyper Geometric distribution is applicable when n elements are drawn randomly without replacement and number of possible successes are fixed.
- The underlying random variable of Poisson distribution is continuous random variable.
- Binomial distribution is applicable if the trials are performed without replacement.
- If n is large and p is small in the binomial distribution then X follows Hyper Geometric distribution.

Question 4

0.5 / 0.5 pts

The area to the left of z = 2.38 is

- 0.0087
- 0.9913
- 0.9091
- 0.1876

28°C

ENG

12:13 PM

Question 5 0.5 / 0.5 pts

What is the probability that the random variable following normal distribution will take values between $\mu + 2\sigma$ to $\mu - 2\sigma$?

- Can't say
- About 99.75%
- About 95%
- About 68%

Question 6 0.5 / 0.5 pts

Let X and Y have joint probability density function , f (x. y) = 4xy for 0<x<1 and 0 <y<1.Find P(Y<X)

- 1/2
- 2/3
- 0
- 1/6

Question 7 0.5 / 0.5 pts

By decreasing the sample size, the confidence interval becomes

- All the above
- Fixed
- Wider
- Narrower

Question 8 0.5 / 0.5 pts

Which of the following statements are correct?

- a point estimate is an unbiased estimator if its standard deviation is the same as the actual value of the population standard deviation
- a point estimate is a single value estimate of the value of a population parameter
- All of the above statements are correct
- a point estimate is an estimate of the range of a population parameter

Question 9 0.5 / 0.5 pts

Random samples of size 100 are drawn from a population with mean 100 and standard deviation 25. what is the standard deviation of sample mean?

- 4.5
- 2.5
- 1.5
- 3.5

Question 10 0.5 / 0.5 pts

A T-test sample has 8 pairs of samples. The distribution should contain

- 7 degrees of freedom
- 5 degrees of freedom
- 6 degrees of freedom
- 16 degrees of freedom

Question 2

0.5 / 0.5 pts

If a random variable X follows a Poisson distribution with parameter λ, what is the variance of X?

- (●) λ
- ( ) $\frac{1}{\lambda}$
- ( ) 2λ
- ( ) λ^2

Question 3

0.5 / 0.5 pts

A computing system manager states that the rate of interruptions to the internet service is 0.2 per week. Find the probability of one interruption in 3 weeks using Poisson distribution.

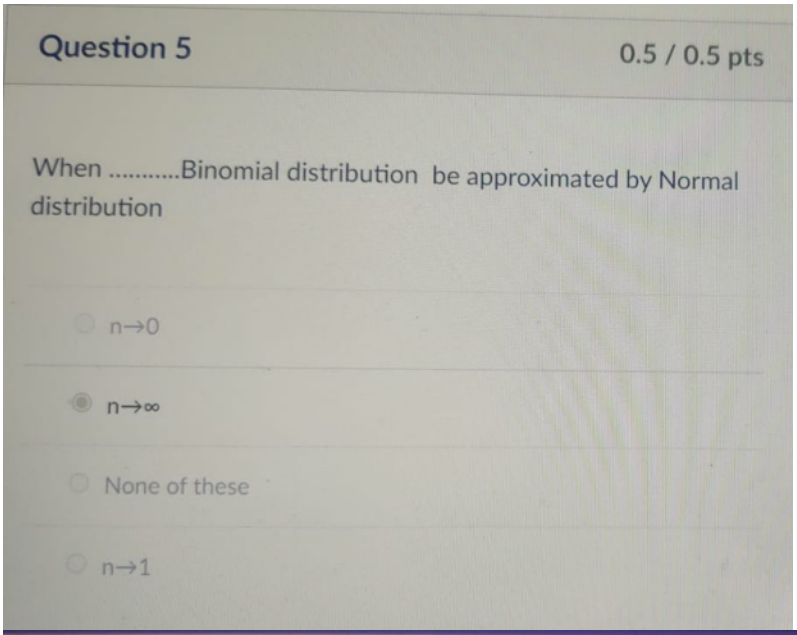
- ( ) 0.4235
- ( ) 0.1637
- (●) 0.3292
- ( ) 0.5678

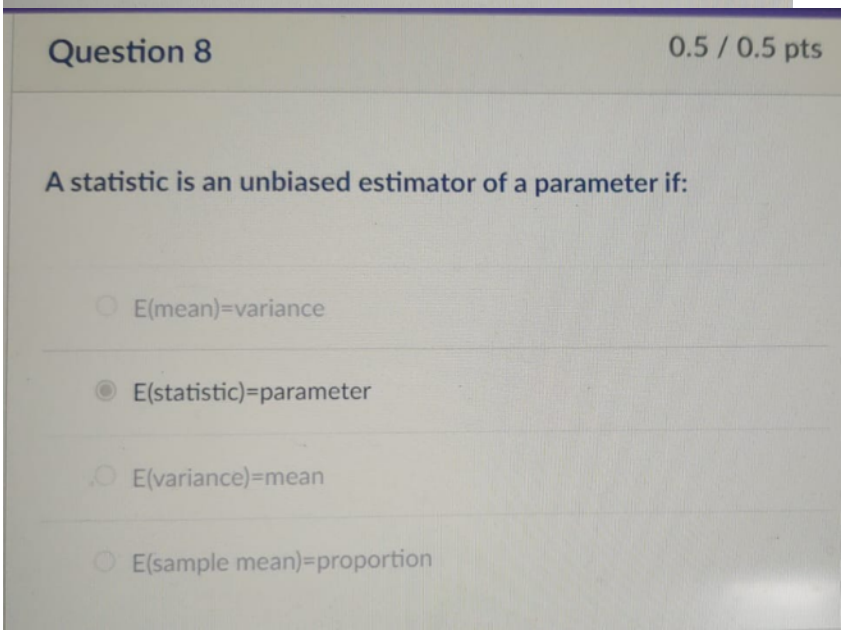
Question 4

0.5 / 0.5 pts

A Normal distribution with mean μ=0 and Standard deviation σ =1 is

- (●) Standard Normal distribution.
- ( ) Perfect Normal distribution
- ( ) Ideal Normal distribution
- ( ) Regular Normal distribution





Jobs arrive at a facility at an average rate of 5 in an 8 hour shift. The arrival of the jobs follows Poisson distribution. The average service time of a job on the facility is 40 minutes. The service time follows exponential distribution. Idle time (in hours) at the facility per shift will be

Group of answer choices

7/5

5/7

14/3

10/3

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	50 minutes	4.5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4.5** out of 5
Submitted Feb 19 at 13:51
This attempt took 50 minutes.

Question 1 — 0.5 / 0.5 pts

In a binomial distribution, the mean is 4 and variance is 3. Then its mode is

- (●) 4
- ( ) 3
- ( ) 6

5

Question 2

0.5 / 0.5 pts

Suppose the daily sales of ice-creams in an ice cream parlor is Poisson variable with mean 3, then find the probability that the shopkeeper sells at most 7 ice daily .

- 0.9661
- 0.9881
- 0.9771
- 0.9623

Question 3

0.5 / 0.5 pts

In town, 10 accidents take place in the span of 50 days. Assuming that the number of accidents follows Poisson distribution, the probability that there will be 3 or more accidents on a day is _____

- 0.1002
- 0.0012
- 0.3421
- 0.2102

Question 4

0.5 / 0.5 pts

If X is N(3,4) Find k such that P (| X-3 | > k)=0.05

- 4.92
- (•) 3.92
- 2.92
- 1.92

Question 5

0.5 / 0.5 pts

Normal distribution is symmetric about

- Variance
- Covariance
- (•) Mean
- Standard deviation

Incorrect

Question 6

0 / 0.5 pts

If X and Y are two random variables having joint density function f(x, y)=(6-x-y)/8 ; 0<x<2, 2<y<4. Find P(X=Y<3)

- 5/24

- [x] 7/24
- [ ] 9/24
- [ ] 3/24

Question 7

0.5 / 0.5 pts

A survey is conducted on 1300 students in a school to find the proportion of students who are interested in taking a music course. The upper and lower limits are 0.746 and 0.582. Calculate the point estimate and margin of error.

- [ ] 0.264 and 0.482
- [x] 0.664 and 0.082
- [ ] 0.464 and 0.282
- [ ] 0.364 and 0.382

Question 8

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- [ ] 18000
- [x] 20000
- [ ] 22000

40000

Question 9

0.5 / 0.5 pts

Suppose we want to make a voters list for the general elections 2019 then we require _____

- random error
- census
- Sampling error
- simple error

Question 10

0.5 / 0.5 pts

1. If we accept a Null hypothesis, when it is false then this is an error of type _____

- I
- II
- BOTH
- Can't be determined

Quiz Score: **4.5** out of 5

Quiz 2

Due Feb 19 at 11:59pm **Points** 5 **Questions** 10
Available Feb 18 at 6pm - Feb 19 at 11:59pm **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	35 minutes	5 out of 5

ⓘ Correct answers will be available on Feb 20 at 6pm.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 1:47pm
This attempt took 35 minutes.

Question 1 — 0.5 / 0.5 pts

If a random variable X follows a binomial distribution with parameters n and p, what is the expected value of X?

- p/n
- np

- n(1-p)
- n/p

Question 2

0.5 / 0.5 pts

A book of 200 pages contains 200 misprinted. Estimate the probability that a given page contains at least 2 misprints

- 0.423
- 0.3243
- 0.29
- 0.2642

Question 3

0.5 / 0.5 pts

If a random variable X follows a Poisson distribution with parameter λ, what is the variance of X?

- λ^2
- $\frac{1}{\lambda}$
- 2λ
- λ

Question 4

0.5 / 0.5 pts

Let X be a normal random variable with mean zero and variance 9. If a = P (X > 3), then P (| X | ≤ 3) equals:

- (●) 1 - 2a
- ( ) 2a
- ( ) 1 - a
- ( ) a

Question 5

0.5 / 0.5 pts

The annual precipitation data of a city is normally distributed with mean and standard deviation as 1000 mm and 200 mm, respectively. The probability that the annual precipitation will be more than 1200 mm is

- ( ) 75 %
- ( ) 100 %
- (●) < 50 %
- ( ) 50 %

Question 6

0.5 / 0.5 pts

The probability density function(pdf) for two continuous random variables X and Y is given by

$$f(x,y) = \begin{cases} \frac{(2x-xy)}{2} & x>0, y>0 \,\&\, x+y<2 \\ 0 & otherwise \end{cases}$$

Find E(2X-3Y)

- None of these
- 21/15
- 18/15
- 14/15

Question 7

0.5 / 0.5 pts

Find the 99% confidence interval estimate if the sample mean $\overline{X}$ =0,the sample size n=121 and σ=11.

- -1.888941 to 1.888941
- -4.722354 to 4.722354
- -2.575829 to 2.575829
- -1.133365 to 1.133365

Question 8

0.5 / 0.5 pts

A statistician calculates a 95% confidence interval for mean and standard deviation is known. The confidence interval is RS 18000 to RS 22000, the amount of the sample mean is

- (●) 20000
- ( ) 22000
- ( ) 40000
- ( ) 18000

Question 9

0.5 / 0.5 pts

In a random sample of 1000 students, $p\hat{}$ = 0.80 (or 80%) were in favor of longer hours at the school library. The standard error of $p\hat{}$ (the sample proportion) is

- ( ) 0 .640
- ( ) 0.160
- ( ) 0.800
- (●) 0 .013

Question 10

0.5 / 0.5 pts

1. If we accept a Null hypothesis, when it is false then this is an error of type _____

- BOTH
- II
- Can't be determined
- I

Quiz Score: **5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	45 minutes	4.5 out of 5

Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **4.5** out of 5
Submitted Feb 19 at 13:23
This attempt took 45 minutes.

Question 1 — 0.5 / 0.5 pts

In transmission of signals, either correctly transmitted and transmission with noise are equally likely to occur. The probability of obtaining at most one transmission with noise in five transmissions is

- 1/32

- 1/9
- 3/16
- 1/16

Question 2

0.5 / 0.5 pts

For a Poisson variate X , 2P (X = 0) = P (X = 2). Then the SD of X is

- $\frac{1}{2}$
- $\sqrt{3}$
- $\frac{1}{4}$
- $\sqrt{2}$

Question 3

0.5 / 0.5 pts

Consider a Poisson distribution for the tossing of an unbiased coin. The mean of the distribution is μ. The standard deviation of for this distribution is given by

- μ
- $\sqrt{\mu}$

- $\frac{1}{\mu}$
- μ^2

Question 4

0.5 / 0.5 pts

In a collection of 10,000 balls of 10 different colors the probability of presence of blue colored balls at least 1050 times is_____

- 0.0465
- 0.012
- 0.0323
- 0.423

Question 5

0.5 / 0.5 pts

The annual precipitation data of a city is normally distributed with mean and standard deviation as 1000 mm and 200 mm, respectively. The probability that the annual precipitation will be more than 1200 mm is

- 75 %
- < 50 %
- 100 %

50 %

Question 6

0.5 / 0.5 pts

If X and Y are discrete random variables with the distribution

$$f(x,y) = \begin{cases} k(2x+y) & x = 1,2 \ \& \ y = 1,2 \\ 0 & otherwise \end{cases}$$

Then the marginal probability function of x is

- $\frac{x+3}{9}$
- None of these
- $\frac{4x+3}{18}$
- $\frac{4x+3}{9}$

Question 7

0.5 / 0.5 pts

From a large lot of oranges a random sample of 700 oranges was drawn and 60 were found to be bad. Then the confidence interval at 2% level of significance for the percentage of bad oranges in this lot is_____

- None of these
- (-0.13265,-0.06734)

(0.01133,0.03265)

(0.06734, 0.13265)

Question 8

0.5 / 0.5 pts

1. What is the best description of a point estimate?

the margin of error used to estimate a parameter

a sample statistic used to estimate a parameter

All of the above

any value from the sample used to estimate a parameter

Question 9

0.5 / 0.5 pts

Find the standard error of population proportion p for sampling with replacement. The population proportion is 0.157 and size of sample is 200.

0.5

0.375

0.225

0.026

Incorrect

Question 10

0 / 0.5 pts

A manager of the credit department for an oil company would like to determine whether the mean monthly balance of credit card holders is equal to $75. An auditor selects a random sample of 100 accounts and finds that the mean owed is $83.40 with a sample standard deviation of $23.65. If you were to conduct a test to determine whether the auditor should conclude that there is evidence that the mean balance is different from $75, which test would you use?

- ○ t test of population mean
- ◉ t test of a population proportion
- ○ Z test of a population proportion
- ○ Z test of a population mean

Quiz Score: **4.5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10
Available Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	34 minutes	5 out of 5

Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 13:47
This attempt took 34 minutes.

Question 1 — 0.5 / 0.5 pts

If a random variable X follows a binomial distribution with parameters n and p, what is the expected value of X?

- n(1-p)
- n/p

- (selected) np
- p/n

Question 2

0.5 / 0.5 pts

If X and Y are independent poisson variates such that P(X=1)=P(X=2) and P(Y=2)=P(Y=3). Find the variance of X - 2Y.

- 12
- (selected) 14
- 16
- 18

Question 3

0.5 / 0.5 pts

Consider a Poisson distribution for the tossing of an unbiased coin. The mean of the distribution is μ. The standard deviation of for this distribution is given by

- $\frac{1}{\mu}$
- μ^2
- μ
- (selected) $\sqrt{\mu}$

Question 4

0.5 / 0.5 pts

The value of constant ‘e ‘ appearing in normal distribution is

- (●) 2.7183
- ( ) 2.5185
- ( ) 2.7836
- ( ) 2.7138

Question 5

0.5 / 0.5 pts

A Normal distribution with mean μ=0 and Standard deviation σ =1 is

- ( ) Perfect Normal distribution
- (●) Standard Normal distribution.
- ( ) Regular Normal distribution
- ( ) Ideal Normal distribution

Question 6

0.5 / 0.5 pts

Let X and Y have joint probability density function , f (x. y) = 4xy for 0<x<1 and 0 <y<1.Find P(Y<X)

- (●) 1/2
- ( ) 0
- ( ) 2/3
- ( ) 1/6

Question 7

0.5 / 0.5 pts

Considering the sample size, the sampling distribution standard error decreases when

- ( ) margin of error increases
- ( ) Margin of error decreases
- ( ) Size of sample decreases
- (●) Size of sample increases

Question 8

0.5 / 0.5 pts

An estimator is a random variable because it varies from:

- (●) Sample to sample

- Population to population
- Sample to population
- Population to sample

Question 9

0.5 / 0.5 pts

Suppose we want to make a voters list for the general elections 2019 then we require _____

- Sampling error
- census
- simple error
- random error

Question 10

0.5 / 0.5 pts

The average time in years to get a postgraduate degree in computer science was compared for regular students and part time students. Random samples of 100 regular students of computer science majors and 100 part time computer science majors were taken. Choose the appropriate parameter(s) for this situation.

- Difference between two population proportions p1 − p2
- Difference between two population means μ1 − μ2

- One population mean μ
- One population proportion p

Quiz Score: **5** out of 5

Quiz 2

Due Feb 19 at 23:59 **Points** 5 **Questions** 10 **Available** Feb 18 at 18:00 - Feb 19 at 23:59 **Time Limit** 60 Minutes

Instructions

Quiz 2 is scheduled from 18th December 2023, 6:00 pm to 19th December 2023, 11:59 pm.

- Number of questions - 10
- Each question carries 0.5 M
- Time duration - 1 Hour
- Read the question properly and answer.

All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	41 minutes	5 out of 5

ⓘ Correct answers will be available on Feb 20 at 18:00.

Score for this quiz: **5** out of 5
Submitted Feb 19 at 13:56
This attempt took 41 minutes.

Question 1

0.5 / 0.5 pts

The mean and variance of a binomial distribution are 3 and 3/4 then what is the value of $P(X \geq 2)$?

- ○ 0.5
- ○ 0.5492
- ○ 0.7492
- ◉ 0.9492

Question 2

0.5 / 0.5 pts

A computing system manager states that the rate of interruptions to the internet service is 0.2 per week. Find the probability of one interruption in 3 weeks using Poisson distribution.

- 0.4235
- 0.5678
- 0.1637
- 0.3292

Question 3

0.5 / 0.5 pts

For a Poisson variate X , 2P (X = 0) = P (X = 2). Then the SD of X is

- $\frac{1}{2}$
- $\sqrt{2}$
- $\sqrt{3}$
- $\frac{1}{4}$

Question 4

0.5 / 0.5 pts

Normal distribution is symmetric about

- Covariance
- Standard deviation

Variance

Mean

Question 5

0.5 / 0.5 pts

In a collection of 10,000 balls of 10 different colors the probability of presence of blue colored balls at least 1050 times is_____

0.0323

0.0465

0.012

0.423

Question 6

0.5 / 0.5 pts

If the joint probability density function of the random variable(x, y) is given by

f(x,y) =2, 0≤x≤y≤1 then fy(y) is

2y

y

3y

5y

Question 7

0.5 / 0.5 pts

Considering the sample size, the sampling distribution standard error decreases when

- margin of error increases
- (selected) Size of sample increases
- Size of sample decreases
- Margin of error decreases

Question 8

0.5 / 0.5 pts

A point estimator is defined as:

- the average of the sample values
- (selected) a single value that is the best estimate of an unknown population parameter
- the average of the population values
- a single value that is the best estimate of an unknown sample statistic

Question 9

0.5 / 0.5 pts

One day Chlorine concentration in water samples from an apartment averages 11 mg/L and has a standard deviation 2 mg/L. Find the probability that average content in 131 samples will lie between 10.6 and 12.6 mg/L using the central limit theorem.

- 0.966
- 0.944
- (selected) 0.989
- 0.906

Question 10

0.5 / 0.5 pts

If you want to test the null hypothesis that the mean is 100 versus the alternative that it is greater than 100 and you get a sample mean of 90, which is true?

- Always reject the null hypothesis
- Never reject the null hypothesis
- Reject the null if n > 30, otherwise fail to reject
- Cannot say anything, because the standard deviation and the sample size are needed

Quiz Score: **5** out of 5