

Quiz 3

Due Mar 12 at 23:59**Points** 5**Questions** 10**Available** Mar 11 at 18:00 - Mar 12 at 23:59**Time Limit** 60 Minutes

Instructions

Quiz 3 is scheduled from 11th March 2023, 6:00 pm to 12th March 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	49 minutes	4 out of 5

⚠ Correct answers will be available on Mar 13 at 18:00.

Score for this quiz: **4** out of 5

Submitted Mar 12 at 0:42

This attempt took 49 minutes.

Incorrect

Question 1

0 / 0.5 pts

Which is the suitable measure to find average income of a group of persons?

☐ Mode

☐ Quartiles

☐ Median

☒ Mean

Question 2**0.5 / 0.5 pts**

Suppose four letters are selected from word AMRITSAR. What is chance that all selected letters are different?

☐ 7/2☐ 2/7☐ 11/70☒ 15/70**Question 3****0.5 / 0.5 pts**

In a reputed school, the probability of boys playing baseball is 0.6 and the probability of boys playing baseball and foot ball is 0.24. what is the probability of those who play baseball also play football?

☒ 40%☐ 20%☐ 30%☐ 50%**Question 4****0.5 / 0.5 pts**

In a binomial distribution, if $n=15$, $p=0.25$ then the value of $P(X=5)$ is

☒ 0.1651☐ 0.6865☐ 0.1561☐ 0.8516**Question 5****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☐ 10/3☒ 14/3**Incorrect****Question 6****0 / 0.5 pts**

A fair and an unfair coin with $P(T)=3/4$ 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 _____

☒ 128/512☐ 136/512

☐ 1/2☐ None of these**Question 7****0.5 / 0.5 pts**

If $X \sim N(3, 16)$ then $P(X < 5) =$

☒ 0.3085☐ 0.3885☐ 0.3805☐ 0.3580**Question 8****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

☒ 267☐ 262☐ 264☐ 260**Question 9****0.5 / 0.5 pts**

An estimator is a random variable because it varies from:

- ☐ Population to sample
- ☐ Population to population
- ☐ Sample to population
- ☒ Sample to sample

Question 10

0.5 / 0.5 pts

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

- ☐ Acceptance value
- ☐ Significant value
- ☒ Critical value
- ☐ Rejection value

Quiz Score: **4** out of 5

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	Attempt	Time	Score
LATEST	Attempt 1	23 minutes	4.5 out of 5

⚠ Correct answers will be available on Mar 13 at 18:00.

Score for this quiz: **4.5** out of 5

Submitted Mar 12 at 18:23

This attempt took 23 minutes.

Question 1**0.5 / 0.5 pts**

Which of the following is true.

- ☐ Mean is not affected by extreme values
- ☒ Median cannot easily be used to estimate population parameter.
- ☐ Median can easily be used to estimate population parameter.
- ☐ Median is affected by extreme values

Question 2**0.5 / 0.5 pts**

A die is thrown twice. What is the probability that both numbers are even prime?

- ☐ 1/6
- ☒ 1/36
- ☐ 1/3
- ☐ 1/2

Incorrect

Question 3

0 / 0.5 pts

White and red balls are contained in a bag. A total of two balls are chosen without being replaced. The odds of picking a white ball first and subsequently a red ball are 0.28. On the first draw, there is a 0.5 chance of selecting a white ball. Given that the first ball drawn was white, calculate the chance of selecting a red ball on the second draw.

☒ None of the above☐ 59/100☐ 58/100☐ 14/25

Question 4

0.5 / 0.5 pts

If X follows a binomial distribution $B(n, 0.2)$. If $E(X) = 5$ then the sample size n is ----- and $V(X)$ is -----

☐ $n = 25$ and $V(X) = 5$

☐ $n = 15$ and $V(X) = 4$

☐ $n = 20$ and $V(X) = 4$

☒ $n = 25$ and $V(X) = 4$

Question 5

0.5 / 0.5 pts

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

☐ 0.423

☐ 0.29

☒ 0.2642

☐ 0.3243

Question 6

0.5 / 0.5 pts

If the joint probability density function of the random variable (x, y) is given by $f(x, y) = 2, 0 \leq x \leq y \leq 1$ then $f_y(y)$ is

☒ 2y☐ y☐ 3y☐ 5y

Question 7

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 $P(60 < X < 90)$?

☐ 0.1717☐ 0.1617☐ 0.8716

☒ 0.7176

Question 8

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?

☐ 3.5

☒ 2.5

☐ 1.5

☐ 4.5

Question 9

0.5 / 0.5 pts

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

☐ the margin of error used to estimate a parameter

- ☐ All of the above
- ☒ a sample statistic used to estimate a parameter
- ☐ any value from the sample used to estimate a parameter

Question 10**0.5 / 0.5 pts**

A statement made about a population for testing purposes is called

- ☐ Type I error
- ☒ Hypothesis
- ☐ Statistics
- ☐ Level of Significance

Quiz Score: 4.5 out of 5

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Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	60 minutes	4.5 out of 5

❗ Correct answers will be available on Mar 13 at 18:00.

Score for this quiz: **4.5** out of 5

Submitted Mar 12 at 19:00

This attempt took 60 minutes.

Question 1	0.5 / 0.5 pts
Which one of the following variables is not categorical?	
<input type="radio"/> Choice on a test item (true or false)	
<input type="radio"/> Gender of person(male or female)	
<input checked="" type="radio"/> Age of a person	

- ☐ Marital status of a person(single, married, divorced, other)

Question 2**0.5 / 0.5 pts**

A box contains 10 identical balls. 6 of them are Green and 4 are Pink. Two balls are randomly selected without replacement from the box. What is the probability of getting two green balls?

☒ 1/3

☐ 6/10

☐ 5/9

☐ 5/10

Question 3**0.5 / 0.5 pts**

There are 3 red balls, 4 green balls, and 5 black balls in a basket. The probability of not getting the red balls is

☐ 5/12

☒ 3/4

☐ 1/3

☐ 1/4

Question 4**0.5 / 0.5 pts**

A binomial distribution may be approximated by a Poisson provided

- ☐ both n and p are small
- ☒ n is large and p is small
- ☐ both n and p are large
- ☐ n is small and p is large

Question 5

0.5 / 0.5 pts

Suppose that a book of 600 pages contains 40 printing mistakes. Assume that these errors are randomly distributed throughout the book and x , the number of errors per page has a Poisson distribution. What is the probability that 10 pages selected at random will be free of errors?

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

Incorrect

Question 6

0 / 0.5 pts

If X and Y are independent, the cumulative distribution function $F_{X,Y}(x,y)$ is equal to

☐ $P(X \leq x) - P(Y \leq x)$

☐ $F_X(x) \cdot F_Y(y)$

☐ $P(X \leq x) + P(Y \leq y)$

☒ $F_X(x) + F_Y(y)$

Question 7

0.5 / 0.5 pts

A Normal distribution with mean $\mu=0$ and Standard deviation $\sigma=1$ is

☒ Standard Normal distribution.

☐ Regular Normal distribution

☐ Ideal Normal distribution

☐ Perfect Normal distribution

Question 8

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

Question 9**0.5 / 0.5 pts**

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

- ☐ -1.888941 to 1.888941
- ☐ -1.133365 to 1.133365
- ☒ -2.575829 to 2.575829
- ☐ -4.722354 to 4.722354

Question 10**0.5 / 0.5 pts**

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

- ☐ None of these
- ☐ Level of margin
- ☐ Level of Confidence

☒ Level of significance

Quiz Score: **4.5** out of 5

Quiz 3 Results for SHIBINKUMAR KRISHNA KUMAR

❗ Correct answers will be available on Mar 13 at 18:00.

Score for this quiz: **5** out of 5

Submitted Mar 12 at 18:11

This attempt took 24 minutes.

Question 1

0.5 / 0.5 pts

The shape of the distribution is symmetrical if

- ☐ Mean < Median
- ☐ Shape does not depend on mean and median
- ☒ Mean = Median
- ☐ Mean > Median

Question 2

0.5 / 0.5 pts

In a box, there are 5 orange, 8 mango, and 9 apples. If a fruit is picked up randomly, what is the probability that it is neither orange nor mango?

- ☐ 13/22
- ☒ 9/22
- ☐ 8/22
- ☐ 5/22

Question 3**0.5 / 0.5 pts**

There are 3 red balls, 4 green balls, and 5 black balls in a basket. The probability of not getting the red balls is

☐ 5/12☐ 1/4☒ 3/4☐ 1/3**Question 4****0.5 / 0.5 pts**

Let X be a random variable that follows Binomial distribution with expectation $E(X) = 7$ and variance $V(X) = 6$. Then the probability of success p is

☐ 6/7☐ 36/49☒ 1/7☐ 1/49**Question 5****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.

☒ 0.3292

☐ 0.1637

☐ 0.5678

☐ 0.4235

Question 6

0.5 / 0.5 pts

For two random variables X and Y with joint PMF given in the table below, $P(X=0, Y \leq 1) =$ _____

	Y=0	Y=1	Y=2
X=0	1/6	1/4	1/8
X=1	1/8	1/6	1/6

☐ 1/6

☒ 5/12

☐ 1/4

☐ 6/13

Question 7

0.5 / 0.5 pts

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

☒ 1 - 2a

☐ 2a

☐ 1 - a

☐ a

Question 8

0.5 / 0.5 pts

In which of the following types of sampling the information is carried out under the opinion of an expert?

☐ quota sampling

☐ purposive sampling

☐ convenience sampling

☒ judgement sampling

Question 9

0.5 / 0.5 pts

A single value used to estimate a population values is called:

☒ Point estimate

- ☐ Degrees of freedom
- ☐ Interval estimate
- ☐ Level of confidence

Question 10**0.5 / 0.5 pts**

A doctor claims that average age of his patients is less than 33. A random sample of 38 patients has an average age of 34. A test is conducted to test the claim. Given that the standard deviation is 8 and level of significance is 0.04. Identify whether the test is one tailed or two tailed.

- ☐ Since the null hypothesis less than type, the test is two tailed.
- ☐ Since the alternative hypothesis less than type, the test is two tailed.
- ☒ Since the alternative hypothesis less than type, the test is one tailed
- ☐ Since the null hypothesis less than type, the test is one tailed.

Quiz Score: 5 out of 5

Quiz 3

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All the best!!!!

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	16 minutes	5 out of 5

❗ Correct answers will be available on Mar 13 at 18:00.

Score for this quiz: **5** out of 5

Submitted Mar 12 at 19:28

This attempt took 16 minutes.

Question 1

0.5 / 0.5 pts

What is the median?

- ☒ Value separating higher half from lower half of a data sample
- ☐ Mean of the highest and lowest number in a data sample
- ☐ Difference between higher half and lower half of the data set

- ☐ Difference between the highest and lowest number

Question 2**0.5 / 0.5 pts**

A die is thrown once. What is the probability that the score is a factor of 12?

☐ 3/6

☒ 5/6

☐ 2/6

☐ 4/6

Question 3**0.5 / 0.5 pts**

25% of the children in a school have a dog. 60% have a cat and 15 % have a dog and a cat. What is the probability of those who have a dog also have a cat?

☐ 4/5

☐ 1/5

☒ 3/5

☐ 2/5

Question 4**0.5 / 0.5 pts**

If X follows a binomial distribution $B(n, 0.2)$. If $E(X) = 5$ then the sample size n is ----- and $V(X)$ is -----

☐ $n = 25$ and $V(X) = 5$

☐ $n = 20$ and $V(X) = 4$

☐ $n = 15$ and $V(X) = 4$

☒ $n = 25$ and $V(X) = 4$

Question 5

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

☐ μ^2

☒ $\sqrt{\mu}$

☐ $\frac{1}{\mu}$

Question 6

0.5 / 0.5 pts

The joint cumulative distribution function $F(x,y)$ lies with in the limits



☐ $-\infty$ and 0☐ -1 and 0☒ 0 and 1☐ -1 and 1**Question 7****0.5 / 0.5 pts**

For a standard normal variate, the value of mean is

☐ infinite☐ None of these☒ 0☐ 1**Question 8****0.5 / 0.5 pts**

If the size of the sample is 25 and maximum error with 95% confidence is 0.1, then the standard deviation of the sample is

☐ 2.12☒ 0.255☐ 2.55

☐ 0.025

Question 9

0.5 / 0.5 pts

The difference between value of parameter of population and value of unbiased estimator point is classified as

- ☐ Marginal error
- ☒ Sampling error
- ☐ Population error
- ☐ Confidence 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 _____

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

Quiz Score: **5** out of 5

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Points 5

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LATEST	Attempt 1	60 minutes	4.5 out of 5

⚠ Correct answers will be available on Mar 13 at 18:00.

Score for this quiz: **4.5** out of 5

Submitted Mar 12 at 20:03

This attempt took 60 minutes.

Question 1	0.5 / 0.5 pts
If mean=62.6, median=62.5 then mode=?	
<hr/>	
<input type="radio"/> 61.3	
<hr/>	
<input checked="" type="radio"/> 62.3	
<hr/>	
<input type="radio"/> 63.3	
<hr/>	
<input type="radio"/> 62.8	

Incorrect

Question 2

0 / 0.5 pts

A bag contains two white shoes, 2 brown shoes and 3 black shoes. Two shoes are drawn at random then find the probability that they are in same color.

☒ 9/21

☐ 5/21

☐ 5/7

☐ 1/7

Question 3

0.5 / 0.5 pts

25% of the children in a school have a dog.60% have a cat and 15 % have a dog and a cat. What is the probability of those who have a dog also have a cat?

☐ 4/5

☒ 3/5

☐ 1/5

☐ 2/5

Question 4

0.5 / 0.5 pts

If mean and variance of Binomial distribution are 8,4 respectively. Then $P(X=1)$ is

☒ 1/4096

☐ 1/2

☐ 1/16

☐ 1/8

Question 5

0.5 / 0.5 pts

The number of customers arriving at a grocery store can be modelled by a poisson process with $\lambda=8$ customers per hour. What is the probability that there are 3 customers between 9.30 A.M and 9.45 A.M?

☐ $\frac{4e^{-4}}{3}$

☐ $\frac{e^{-2}}{3}$

☒ $\frac{4e^{-2}}{3}$

☐ $\frac{2e^{-3}}{3}$

Question 6

0.5 / 0.5 pts

A fair and an unfair coin with $P(T)=3/4$ 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

☒ 136/512

☐ 128/512

☐ None of these

Question 7

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 $P(60 < X < 90)$?

☐ 0.1717

☐ 0.8716

☒ 0.7176

☐ 0.1617

Question 8

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

☐ 3.5

☐ 1.5

☒ 2.5

Question 9**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.

☐ 0.464 and 0.282

☒ 0.664 and 0.082

☐ 0.264 and 0.482

☐ 0.364 and 0.382

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

☐ Never reject the null hypothesis

☐ Always reject the null hypothesis

☐ Reject the null if $n > 30$, otherwise fail to reject

Quiz Score: 4.5 out of 5