

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

Paper Pattern

MCQS 40 each 1 mark
Short 4 each 2 marks
Short 4 each 3 marks
long 4 each 5 marks

Question No : 1 of 52

Marks: 1 (Budgeted Time 1 Min)

The parameter of the chi- square distribution is.....

Answer (Please select your correct option)

☒ ν

☐ $\nu - 1$

☐ $\nu - 2$

☐ $\nu - p$

Made by: Waqar Siddhu

Question No : 2 of 52

Marks: 1 (Budgeted Time 1 Min)

The mean of the F-distribution is:

Answer (Please select your correct option)

☐ $\frac{\nu_1}{\nu_1 - 2}$ for $\nu_1 > 2$

☒ $\frac{\nu_2}{\nu_2 - 2}$ for $\nu_2 > 2$

☐ $\frac{\nu_1}{\nu_1 - 2}$ for $\nu_1 \geq 2$

☐ $\frac{\nu_2}{\nu_2 - 2}$ for $\nu_1 \leq 2$

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Question No : 3 of 52

Marks: 1 (Budgeted Time 1 Min)

The F-distribution always ranges from:

Answer (Please select your correct option)

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☐ 0 to 1

☐ 0 to $-\infty$

☐ $-\infty$ to $+\infty$

☒ 0 to $+\infty$

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Question No : 4 of 52

Marks: 1 (Budgeted Time 1 Min)

An expected value of a random variable is equal to:

Answer (Please select your correct option)

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☐ Variance

☒ Mean

☐ Standard deviation

☐ Covariance

Made by: Waqar Siddhu

Question No : 5 of 52

Marks: 1 (Budgeted Time 1 Min)

When $f(x)$ is continuous probability function, then $P(X = 1)$ is:

Answer (Please select your correct option)

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☐ 1

☐ ∞

☐ $-\infty$

☒ 0

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Question No : 6 of 52

Marks: 1 (Budgeted Time 1 Min)

Rumour has reached the Trading Standards Officer that the manufacturer ABC is deliberately underfilling his cartons of orange juice. It is decided that a sample should be taken to check this claim. The stated contents on the carton are 100 ml on the average, then the alternative hypothesis is:

Answer (Please select your correct option)

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☐ $H_1: \mu = 100$ ☐ $H_1: \mu > 100$ ☐ $H_1: \mu < 100$ ☒ $H_1: \mu \neq 100$

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Question No : 7 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following is a characteristics of the normal distribution:

Answer (Please select your correct option)

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☐ It is a skewed distribution☒ It is bell-shaped☐ It is not asymptotic☐ It is leptokurtic

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Question No : 8 of 52

Marks: 1 (Budgeted Time 1 Min)

For the given poisson distribution $P(X = 1) = \frac{e^{-0.135} 0.135^1}{1!}$ the mean value is :

Answer (Please select your correct option)

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☐ $e^{-0.135}$ ☐ -0.135☒ 0.135☐ 1

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Question No : 9 of 52

Marks: 1 (Budgeted Time 1 Min)

In normal distribution $\beta_1 =$

Answer (Please select your correct option)

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1

☐

2

☐

3

☒

0

☐

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Question No : 10 of 52

Marks: 1 (Budgeted Time 1 Min)

In normal distribution, the quartile deviation Q.D =

Answer (Please select your correct option)

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0.5σ

☐

0.75σ

☐

0.7979σ

☐

0.6745σ

☒

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Question No : 11 of 52

Marks: 1 (Budgeted Time 1 Min)

A good way to get a small standard error is to use a

Answer (Please select your correct option)

logical & sure WWW.VirtualAcademyLive.com

Repeated sampling

☐

Small sample

☐

Large sample

☒

Large population

☐

mind it not sure

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Question No : 12 of 52

Marks: 1 (Budgeted Time 1 Min)

The difference between the largest and the smallest data values is called the

$$x_m - x_0$$

Answer (Please select your correct option)

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Variance

☐

Interquartile range

☐

Range

☒

Coefficient of variation

☐

$$x_m = \max \text{ rane } x_0 = \min \text{ range}$$

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Question No : 13 of 52

Marks: 1 (Budgeted Time 1 Min)

Which is appropriate average for finding the average speed of a car.

Answer (Please select your correct option)

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Mean

☐

Geometric mean

☐

Harmonic mean

☒

Weighted mean

☐

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Question No : 14 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one is the formula of mid range:

Answer (Please select your correct option)

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$$x_m - x_0$$

☐

$$x_0 - x_m$$

☐

$$\frac{x_0 - x_m}{2}$$

☐

$$\frac{x_0 + x_m}{2}$$

☒

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Question No : 15 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one of the following is a meso-kurtic curve?

Answer (Please select your correct option)

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☐ Negatively skewed☐ Positively skewed☐ J-shaped☒ Normal

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Question No : 16 of 52

Marks: 1 (Budgeted Time 1 Min)

If you draw all possible samples from some population, calculate the mean for each of the sample and construct the probability distribution of the sample means, what would you have?

Answer (Please select your correct option)

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☐ A population distribution

Logical not sure

☐ A sample distribution☒ A sampling distribution☐ A parameter distribution

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Question No : 17 of 52

Marks: 1 (Budgeted Time 1 Min)

By definition $f(y|x) =$ _____

Answer (Please select your correct option)

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☐ $f(y)$ ☐ $f(x,y)$ ☒ $\frac{f(x,y)}{h(x)}$ ☐ $\frac{f(x,y)}{h(y)}$

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Question No : 18 of 52

Marks: 1 (Budgeted Time 1 Min)

The critical region for $H_1: \mu > \mu_0$ when $\alpha = 0.01$ is:

not sure

Answer (Please select your correct option)

WWW.VirtualAcademyLive.com☒ $z > z_{0.01}$ ☐ $|z| > z_{0.01}$ ☐ $z < -z_{0.05}$ ☐ $|z| > z_{0.05}$

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Question No : 19 of 52

Marks: 1 (Budgeted Time 1 Min)

For degree of freedom $\nu > 2$ the variance of t-distribution is always:

Answer (Please select your correct option)

WWW.VirtualAcademyLive.com☐ Greater than zero☐ Less than one☐ Equal to one☒ Greater than one

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Question No : 20 of 52

Marks: 1 (Budgeted Time 1 Min)

Ideally, the width of confidence interval should be:

Answer (Please select your correct option)

WWW.VirtualAcademyLive.com☒ 0☐ 1☐ 99☐ 100

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Question No : 21 of 52

Marks: 1 (Budgeted Time 1 Min)

If the sampling distribution of \bar{X} is normal, we would expect 99% of the sample means to be within the interval:

Answer (Please select your correct option)

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☐ $\mu_x \pm 2\sigma_x$

☐ $\mu_x \pm 1.96\sigma_x$

☒ $\mu_x \pm 2.58\sigma_x$

☐ $\mu_x \pm \sigma_x$

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Question No : 22 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one of the formula will be used to find out the confidence interval for μ , when population variance unknown and sample size is large?

Answer (Please select your correct option)

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☒ $\bar{x} \pm Z_{\alpha/2} \frac{s}{\sqrt{n}}$

☐ $\bar{x} \pm t_{\alpha/2(n)} \frac{s}{\sqrt{n}}$

☐ $\bar{x} \pm t_{\alpha/2(n)} \frac{\sigma}{\sqrt{n}}$

☐ $\bar{x} \pm Z_{\alpha/2} \frac{s}{\sqrt{n-1}}$

Made by: Waqar Siddhu

Question No : 23 of 52

Marks: 1 (Budgeted Time 1 Min)

If \bar{X} is the mean of the n observations, then which test statistic will be used to calculate the confidence limits of the population variance σ^2 ?

Answer (Please select your correct option)

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☒ Z-statistic☐ T-statistic☐ χ^2 -statistics☐ F-statistics

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Question No : 24 of 52

Marks: 1 (Budgeted Time 1 Min)

In Statistics, we have MSE which is abbreviation of

Answer (Please select your correct option)

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☒ Mean square error

☐ Measured square error

☐ Medical screening exam

☐ Major sampling error

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Question No : 25 of 52

Marks: 1 (Budgeted Time 1 Min)

In the test of goodness of fit, the _____ is used as a test statistic.

Answer (Please select your correct option)

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☐ F

☐ t

☐ Z

☒ χ^2

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Question No : 26 of 52

Marks: 1 (Budgeted Time 1 Min)

If there are 8 treatments with 6 blocks in a randomized completed block design then what are the degrees of freedom for treatments?

$$v=n-1$$

v represent the

Answer (Please select your correct option)

degree of WWW.VirtualAcademyLive.com

☐ 5

☐ 4

☐ 6

☒ 7

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Question No : 27 of 52

Marks: 1 (Budgeted Time 1 Min)

What factor determines the shape of the t-distribution?

Answer (Please select your correct option)

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☒ Degree of freedom☐ Critical value☐ Frequency of data☐ Probability

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Question No : 28 of 52

Marks: 1 (Budgeted Time 1 Min)

If X and Y are random variables, then $E(X - Y)$ is equal to:

Answer (Please select your correct option)

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☐ $E(X) + E(Y)$ ☒ $E(X) - E(Y)$ ☐ $X - E(Y)$ ☐ $E(X) - Y$

Made by: Waqar Siddhu

Question No : 29 of 52

Marks: 1 (Budgeted Time 1 Min)

Two continuous r.v.'s X and Y are said to be independent if and only if:

Answer (Please select your correct option)

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☒ $f(x,y) = g(x) h(y)$ ☐ $f(x,y) \neq g(x) h(y)$ ☐ $f(x,y) > g(x) h(y)$ ☐ $f(x,y) < g(x) h(y)$

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Question No : 30 of 52

Marks: 1 (Budgeted Time 1 Min)

The lottery tickets issued for the purpose of money-making follows a:

Answer (Please select your correct option)

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☐ Normal distribution

☒ Discrete uniform distribution

☐ Binomial distribution

☐ Hypergeometric distribution

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Question No : 31 of 52

Marks: 1 (Budgeted Time 1 Min)

Uniform distribution is defined by:

Answer (Please select your correct option)

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☐ Largest value

☐ Largest and smallest value

☐ Smallest value

☒ Central value

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Question No : 32 of 52

Marks: 1 (Budgeted Time 1 Min)

If an estimator gets closer to the population parameter by increasing sample size then it is known as:

Answer (Please select your correct option)

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☒ Consistent estimator

☐ Sufficient estimator

☐ Efficient estimator

☐ Unbiased estimator

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Question No : 33 of 52

Marks: 1 (Budgeted Time 1 Min)

Quantitative variable is further divided into:

Answer (Please select your correct option)

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☐

Continuous variable

☐

Discrete variable

☒

Continuous & Discrete variable

☐

None of the above

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Question No : 34 of 52

Marks: 1 (Budgeted Time 1 Min)

Color of the dress is the example of

Answer (Please select your correct option)

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☒

Qualitative data

☐

Quantitative data

☐

Continuous data

☐

Discrete data

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Question No : 35 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one is commonly called a bell shaped distribution?

Answer (Please select your correct option)

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☒

Symmetrical

☐

Bimodal

☐

Skewed

☐

U shaped

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Question No : 36 of 52

Marks: 1 (Budgeted Time 1 Min)

A fair coin is tossed three times, the probability that at least one head appear is:

Answer (Please select your correct option)

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☐

1/2

☐

1/8

☐

6/8

☒

7/8

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Question No : 37 of 52

Marks: 1 (Budgeted Time 1 Min)

The probability of simultaneous occurrence of two events is called:

Answer (Please select your correct option)

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☐

Subjective probability

☐

Conditional probability

☒

Joint probability

☐

Prior probability

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Question No : 38 of 52

Marks: 1 (Budgeted Time 1 Min)

What is the stem part of 243:

Answer (Please select your correct option)

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☐

3

☐

43

☐

23

☒

24

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Question No : 39 of 52

Marks: 1 (Budgeted Time 1 Min)

A numerical value used as a summary measure for a sample, such as sample mean, is known as a :

Answer (Please select your correct option)

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☐ Population Parameter

☐ Sample Parameter

☐ Sample Statistic

☒ Population mean

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Question No : 40 of 52

Marks: 1 (Budgeted Time 1 Min)

Given the series 1,2,1,1,2,2,2,2,3,4,5,3,2,3,1,4,2,3. Which one of the following is mode of the given series:

Answer (Please select your correct option)

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☐ 4

☐ 3

☐ 2

☒ 1

repeated values is called

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Question No : 41 of 52

Marks: 2 (Budgeted Time 4 Min)

Name the measures of dispersion that are not based on all the values.

Answer (Please click here to Add Answer)

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Normal Arial 12 B I U

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Question No : 42 of 52

Marks: 2 (Budgeted Time 4 Min)

When we use two-tailed test?

Answer ([Please click here to Add Answer](#))

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Normal Arial 12 B I U

test :

A hypothesis test in which rejection of the null hypothesis occurs for values of the test statistic in either tail of the sampling distribution.

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Question No : 43 of 52

Marks: 2 (Budgeted Time 4 Min)

For a sample data $n = 15$, calculate $t_{\alpha/2}$ for $\alpha = 0.10$.

Answer ([Please click here to Add Answer](#))

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Normal Arial 12 B I U

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Question No : 44 of 52

Marks: 2 (Budgeted Time 4 Min)

Suppose we want to determine the proportions of smokers and non smoker in a city? In this situation what type of distribution we can use?

Answer ([Please click here to Add Answer](#))

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Normal Arial 12 B I U

following proportions, we are dealing with a BINOMIAL situation:

- Proportion of smokers in a city smoker → success, non-smokers → failure.
- Proportion of literates in a community → literacy rate, literate → success, illiterate → failure.
- Proportion of males in a city → sex ratio).

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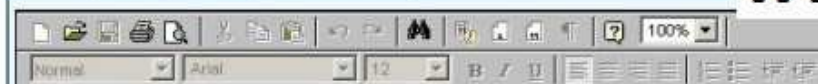
Question No : 45 of 52

Marks: 3 (Budgeted Time 6 Min)

If mean of a distribution is 20 and standard deviation is 2. Find out $\mu \pm 2\sigma$ limits by applying empirical rule. What percent of data will lie between these two limits?

Answer ([Please click here to Add Answer](#))

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calculate app keroo hun

According to this empirical rule:

- Approximately 68% of the measurements will fall within 1 standard deviation of the mean, i.e. within the interval $(-X - S, -X + S)$
- Approximately 95% of the measurements will fall within 2 standard deviations of the mean, i.e. within the interval $(-X - 2S, -X + 2S)$.
- Approximately 100% (practically all) of the measurements will fall within 3 standard deviations of the mean, i.e. within the interval $(-X - 3S, -X + 3S)$.

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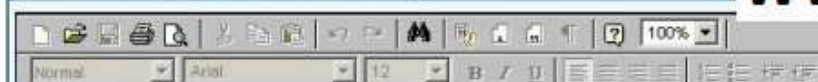
Question No : 46 of 52

Marks: 3 (Budgeted Time 6 Min)

Suppose X is a random variable having Poisson distribution with its parameter value 3, find value of $P(X=1)$.

Answer ([Please click here to Add Answer](#))

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The Poisson distribution has only one parameter $\mu > 0$.

$\mu=3$ $X=1$

$$\lim_{p \rightarrow 0} b(x; n, p) = \frac{e^{-\mu} \mu^x}{x!}, \quad x = 0, 1, 2, \dots, \infty$$

where $e = 2.71828$. & p is 0.05 or less, n is 20 or more.

calculate easily now..



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Question No : 47 of 52

Marks: 3 (Budgeted Time 6 Min)

If $X = 341$, $n = 634$, $p_0 = 0.50$ then find the z-test statistic for proportion.

Answer ([Please click here to Add Answer](#))

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Step 3:

Test statistic:

$$Z = \frac{X - \frac{1}{2} - n p_0}{\sqrt{n p_0 (1 - p_0)}}$$

Step 4:

Computation:

Here $np_0 = 634 (0.50) = 317$
and $X = 341$
Hence $X > np_0$ so use $X - \frac{1}{2}$

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$$\text{So } Z = \frac{341 - \frac{1}{2} - 317}{\sqrt{634(0.50)(0.50)}} = \frac{23.5}{12.59}$$

$$= 1.87$$

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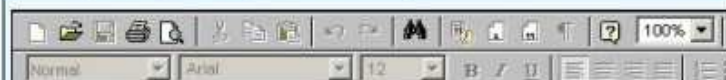
Question No : 48 of 52

Marks: 3 (Budgeted Time 6 Min)

A random sample of size n is drawn from normal population with mean 5 and variance σ^2 . If $s=2.5$, $\bar{x}=7$ and $t=3$, then what is the value of n ?

Answer ([Please click here to Add Answer](#))

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The test-statistic to be used is

$$t = \frac{\bar{X} - \mu_0}{s/\sqrt{n}}$$

here $\mu = 5$...under t is 3 and $s=2.5$ now, n ko

ans shud 1.92 ai ga approx 2 i think
not sure :) becoz stat ae :p

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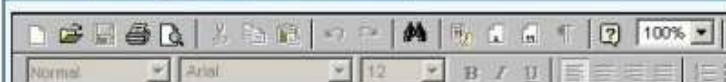
Question No : 49 of 52

Marks: 5 (Budgeted Time 10 Min)

A random variable X is normally distributed with $\mu = 50$ and $\sigma^2 = 25$. Find the probability of X larger than 54.

Answer ([Please click here to Add Answer](#))

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The test-statistic to be used is

$$Z = \frac{\bar{X} - \mu_0}{\sigma/\sqrt{n}}$$

here give σ sq, take under root
 $\sigma = 5$ $\mu = 50$ and $X = 54$ we find $X > 54$
 $(54 - 50)/5 = 4/5$

its half ques see
these type of ques
70 % solve now.. 30
% see table etc

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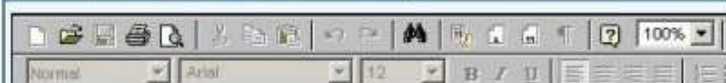
Question No : 50 of 52

Marks: 5 (Budgeted Time 10 Min)

Find the coefficient of variation (C.V) for the following price of a commodity.
Price (₹): 8, 13, 18, 23, 30

Answer ([Please click here to Add Answer](#))

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COEFFICIENT OF VARIATION

$$C.V. = \frac{S}{\bar{X}} \times 100$$

Shortcut Formula for Ungroup data

$$S = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

mean ka formula laga laian \bar{X} bar ki
jaga.... $= \sum x / n$
small n is 5

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Question No : 51 of 52

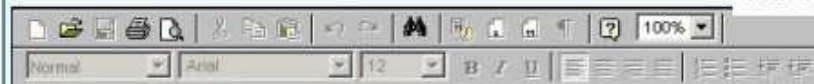
Marks: 5 (Budgeted Time 10 Min)

The given data is $n = 1150, x = 450, p = 0.39, H_0 : p_0 = 0.3, \alpha = 0.01$

Test the stated hypothesis. (Use table value of $z = \pm 2.58$)

Answer ([Please click here to Add Answer](#))

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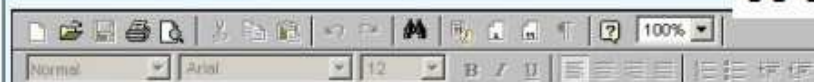
Question No : 52 of 52

Marks: 5 (Budgeted Time 10 Min)

Given, $n_1 = n_2 = 16, s_1^2 = 50, s_2^2 = 16$. Construct a 90% confidence interval for the variance ratio σ_1^2 / σ_2^2 .

Answer ([Please click here to Add Answer](#))

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regards i have no idea about F test and this ques in the F test...
remember me in ur prayer after 3 hr solve 1 paper.. :)

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