# STA406
# CURRENT PAPER 2023
# BY MATHEMATICS

Question No : 1 of 50 Marks: 1 (Time 1 Min)

When sample mean is calculated from the sample then we can find a sample size "n" by using the given below formula:

Answer

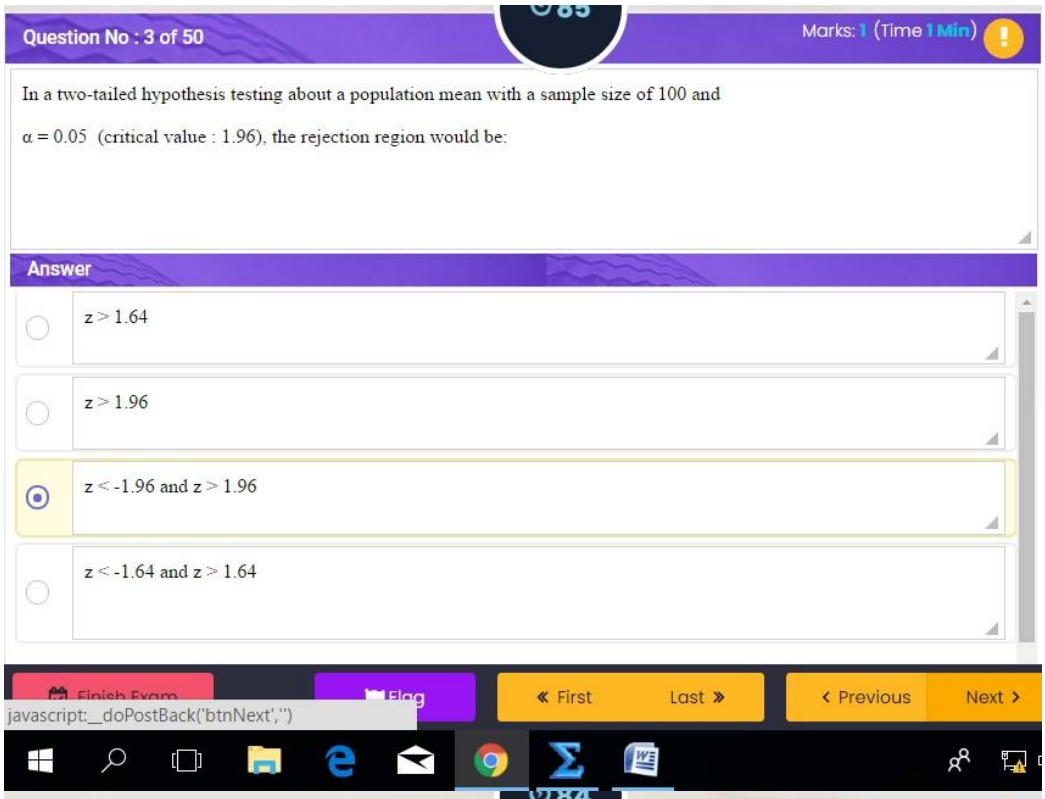
- $\left(\frac{z_t \sigma}{E}\right)$
- $\left(\frac{z_t \sigma^2}{E}\right)$
- $\left(\frac{z_t \sigma}{E}\right)^2$

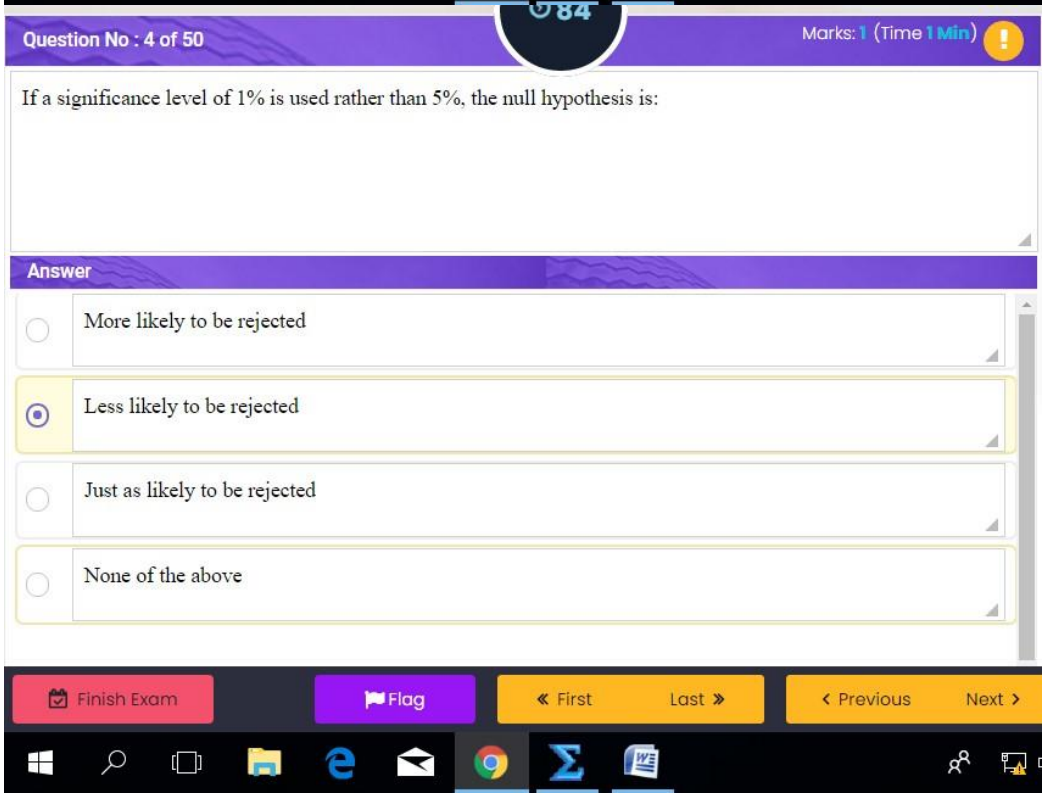
Question No : 2 of 50 Marks: 1 (Time 1 Min)

In a t-distribution, mean for v>1 will be equal to :

Answer

- 0
- 1
- 2
- 3



Question No : 5 of 50

Marks: 1 (Time 1 Min)

A statement that is accepted if the sample data provide sufficient evidence that the null hypothesis is false is called:

Answer

- Simple Hypothesis
- Composite Hypothesis
- Statistical Hypothesis
- Alternative Hypothesis

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Question No : 6 of 50

Marks: 1 (Time 1 Min)

Under what condition would you use the paired t-test?

Answer

- When there is a single sample of data.
- When the two samples of data are independent.
- When there are two proportions.
- When the two samples of data are not independent.

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Question No : 7 of 50 Marks: 1 (Time 1 Min)

If the number of attributes is three represented by **A**, **B** and **C**, then
Number of class frequencies =?

Answer

- $3^2 = 9$
- $3^3 = 27$
- $2^3 = 8$
- $2^2 = 4$

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Question No : 8 of 50 Marks: 1 (Time 1 Min)

The chi-square test is applied to:

Answer

- Interval scale
- Categorical Data
- Ordinal scale
- Ratio Scale

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Question No : 9 of 50

Marks: 1 (Time 1 Min)

The value of $\chi^2$ can never be :

Answer

- Zero
- less than 1
- greater than 1
- Negative

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Question No : 10 of 50

Marks: 1 (Time 1 Min)

What is the formula of $\chi^2$ test statistic?

Answer

- $\frac{nS^2}{\sigma^2}$
- $\frac{n^2S^2}{2\sigma^2}$
- $\frac{S^2}{2\sigma^2}$

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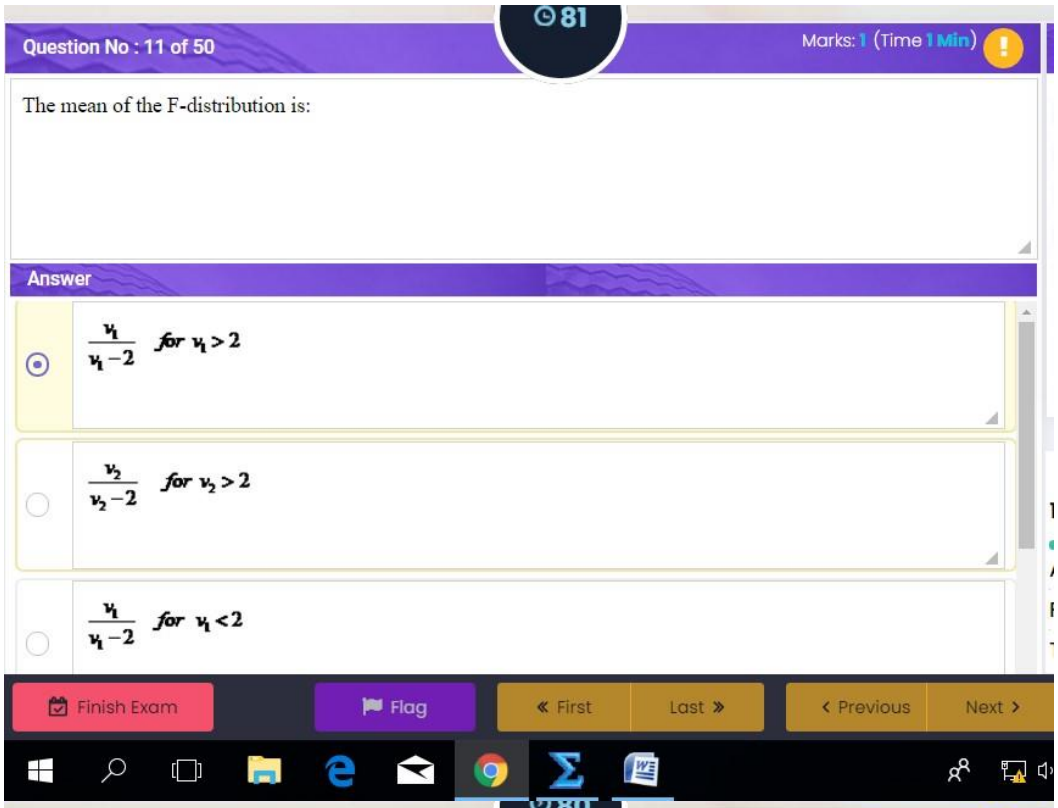


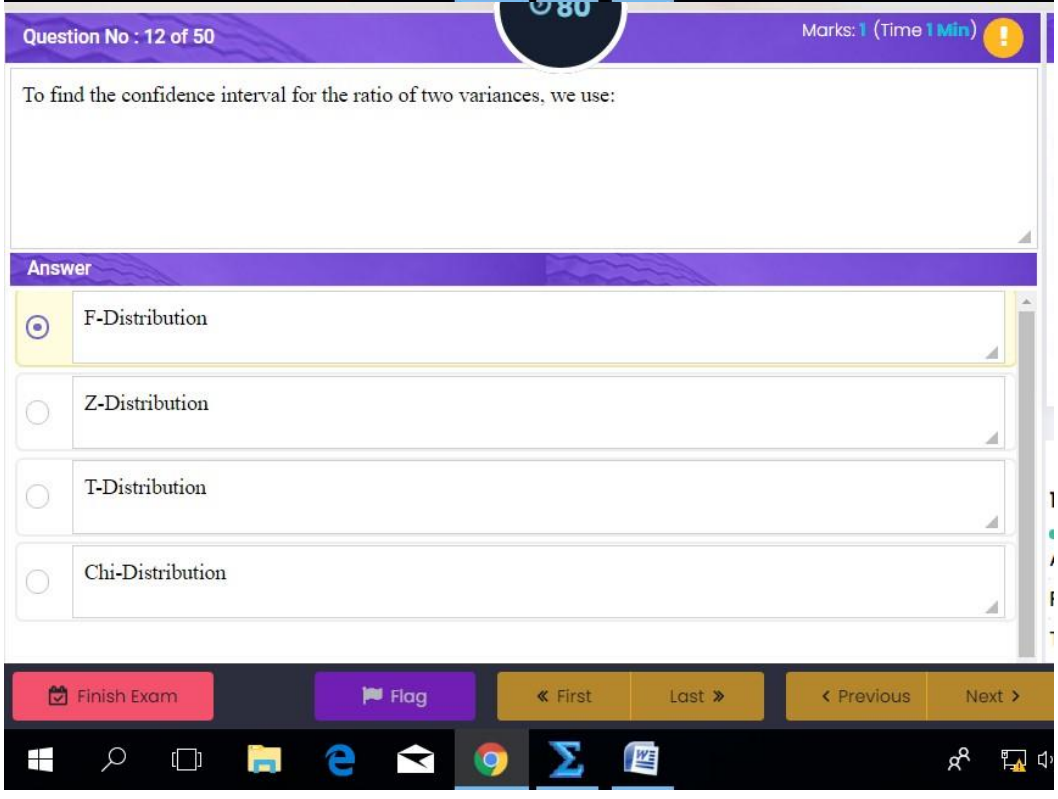

Question No : 13 of 50

Marks: 1 (Time 1 Min)

A hypothesis is a tentative statement about the relationship between how many variables?

Answer

- one or more.
- two or more.
- two.
- three.

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Question No : 14 of 50

Marks: 1 (Time 1 Min)

We use t-distribution in when samples size is:

Answer

- $n < 30$
- $n > 30$
- $n = 30$
- $n \neq 30$

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Question No : 15 of 50 Marks: 1 (Time 1 Min)

The value of $\chi^2_{(1)}$ is equal to:

Answer

- 4.91
- 5.84
- 5.33
- 2.33

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Question No : 16 of 50 Marks: 1 (Time 1 Min)

Mean of the Chi-square distribution is:

Answer

- 1
- 2
- n
- 2n

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Question No : 17 of 50

Marks: 1 (Time 1 Min)

For a random sampling from Normal Population, s2 is a consistent estimator of.

Answer

- (●) Sample variance
- ( ) Population variance
- ( ) Both A and B

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Question No : 18 of 50

Marks: 1 (Time 1 Min)

A statistic (estimator) s(x) is sufficient for ? if conditional density is.

Answer

- ( ) Dependent of parameter
- ( ) Equal to parameter
- (●) Independent of parameter

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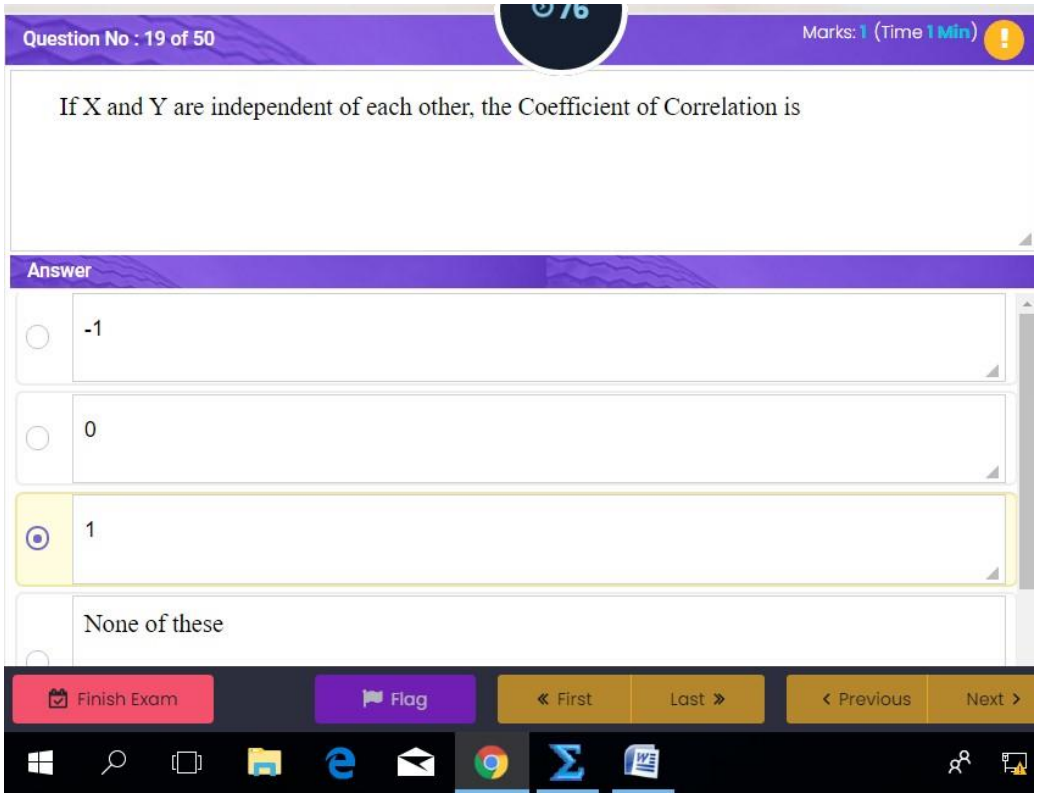


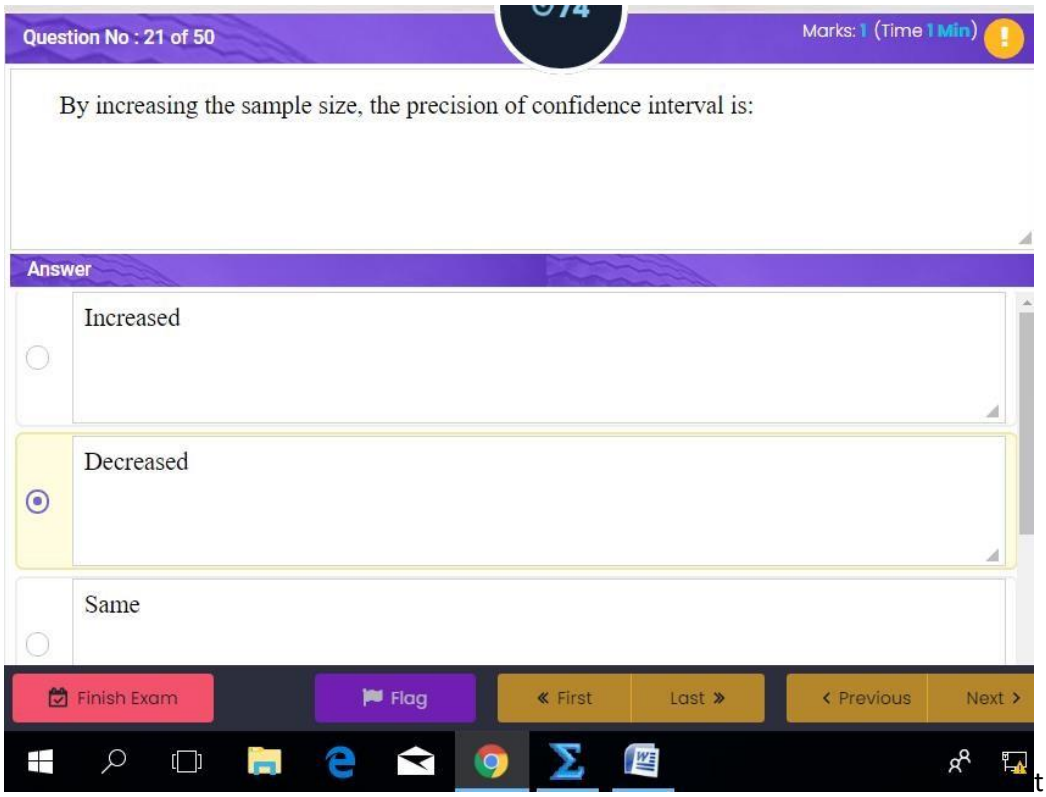

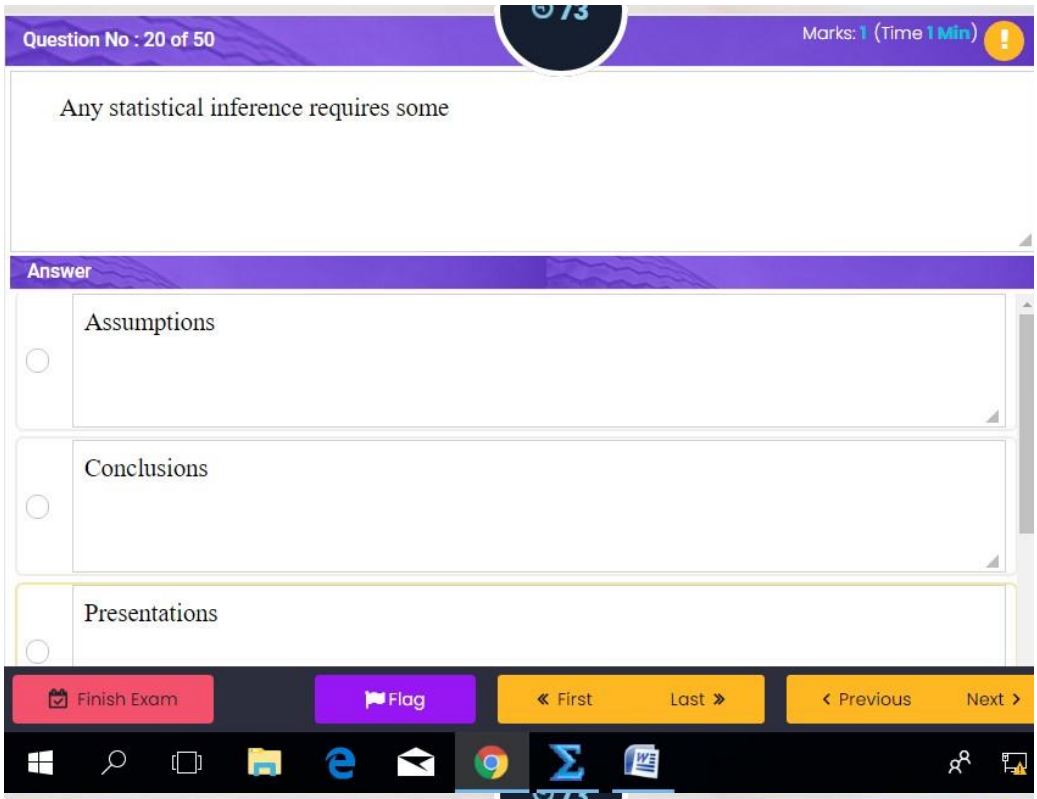


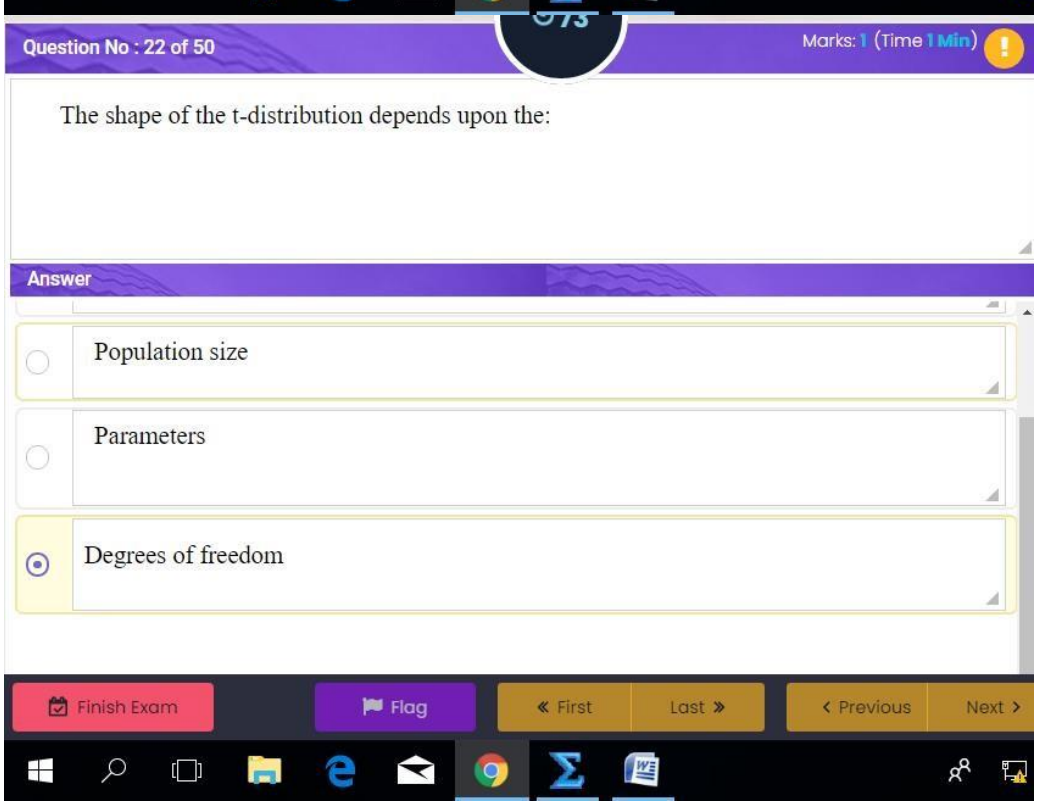

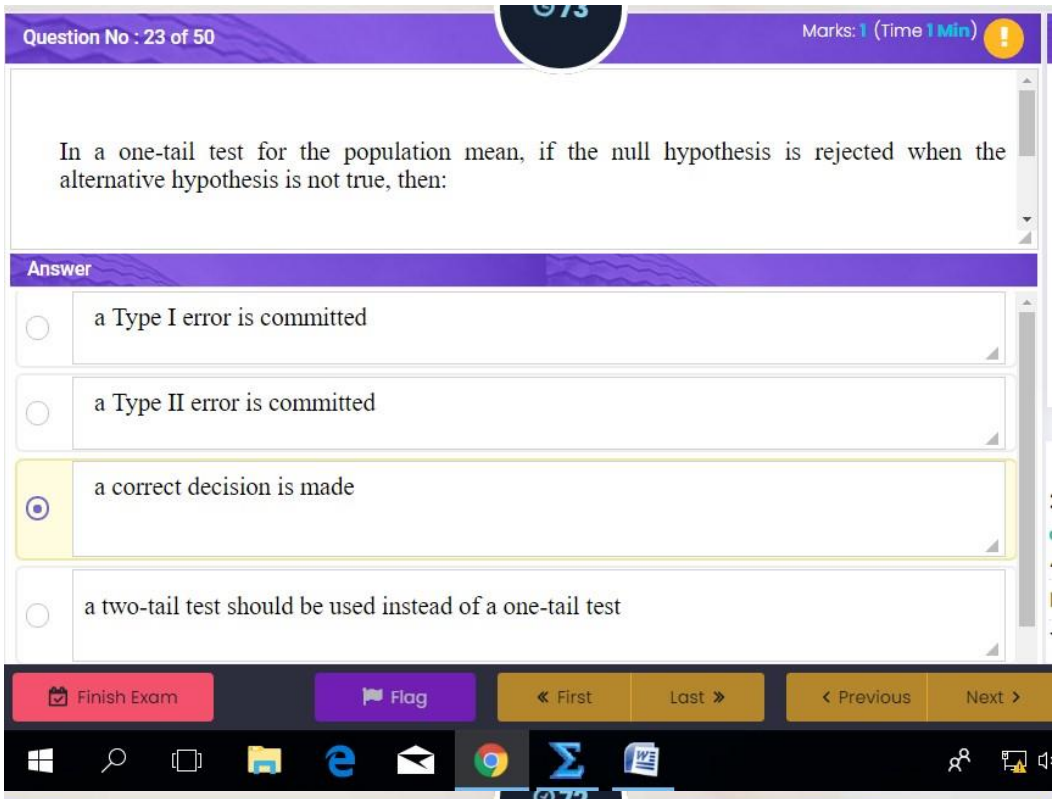


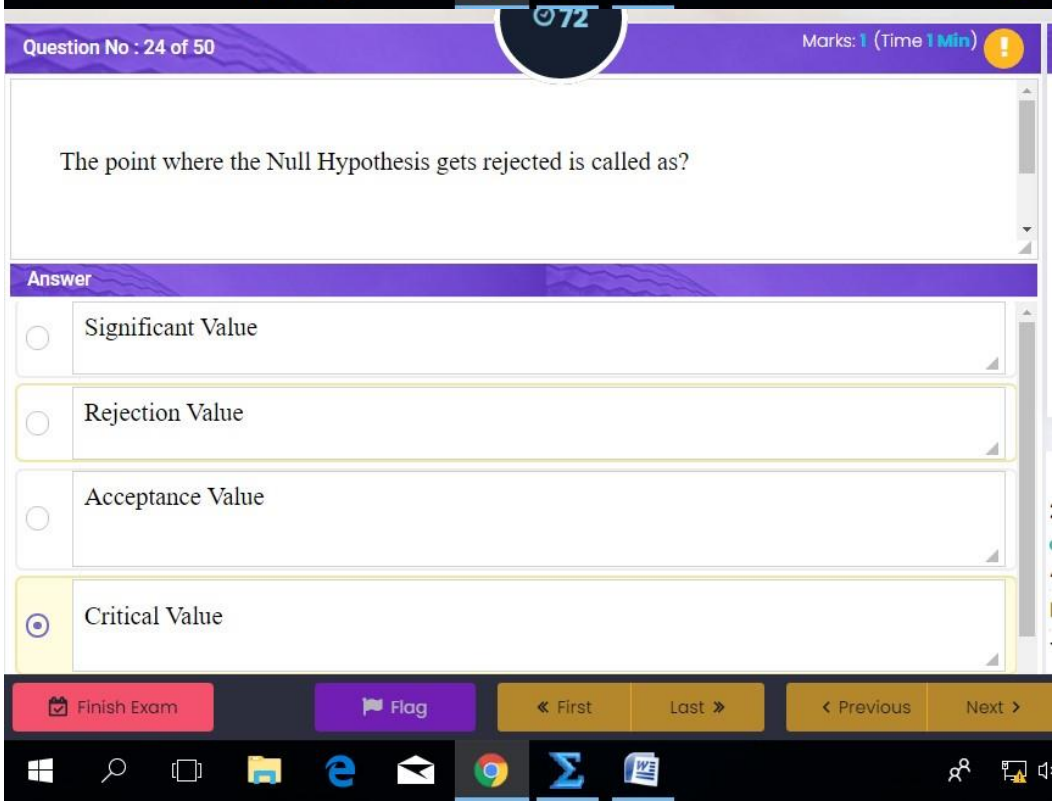

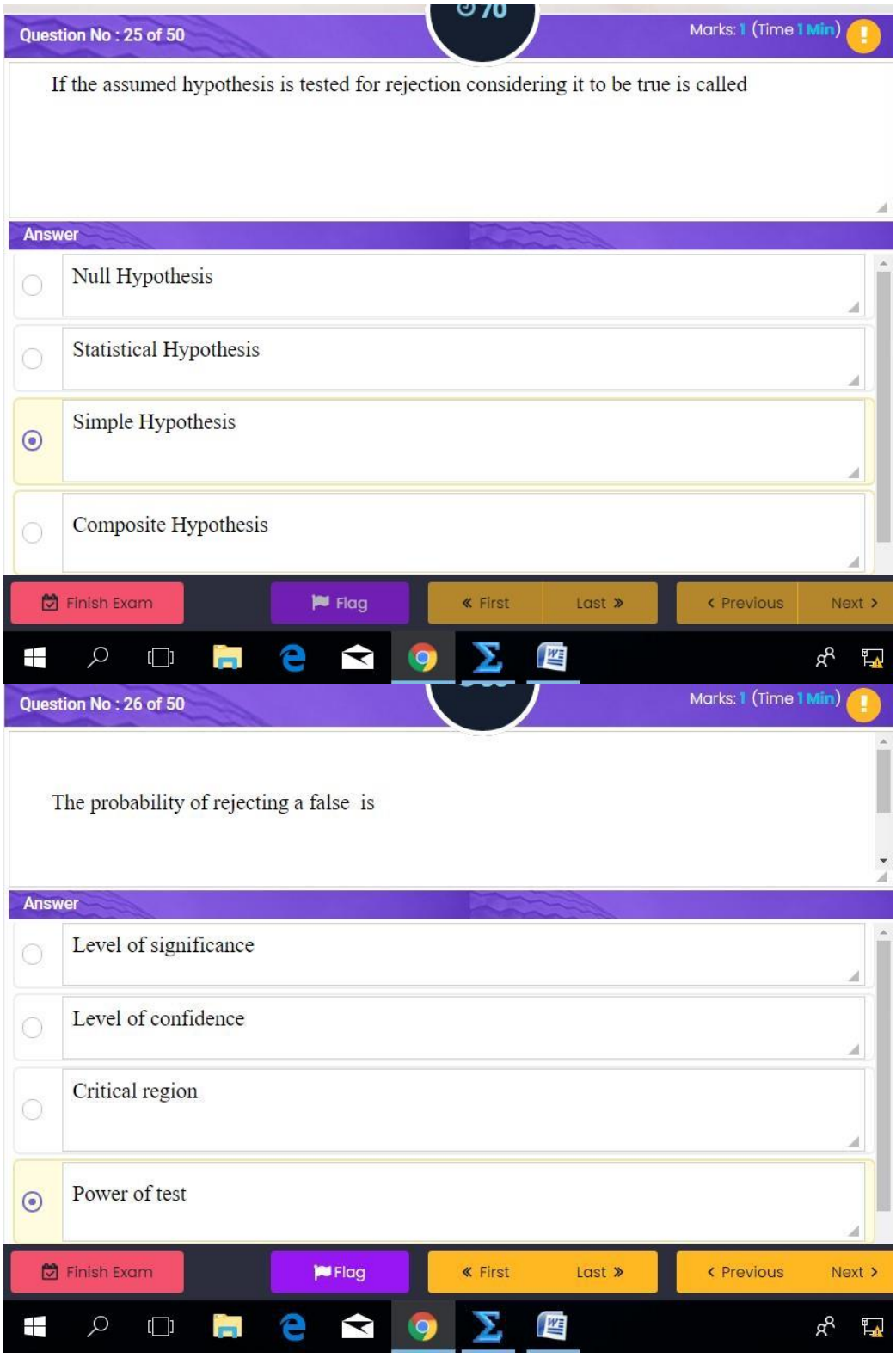

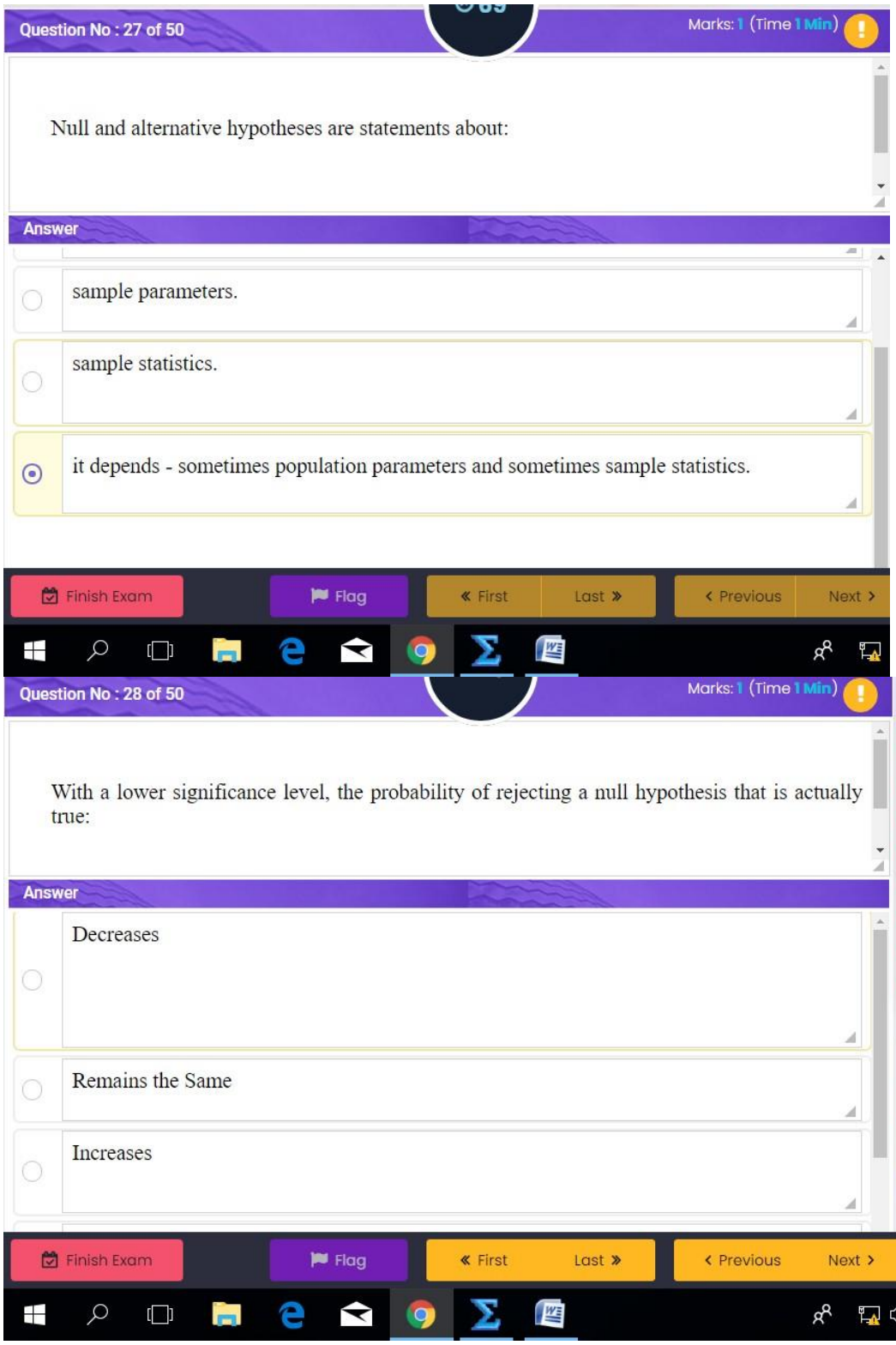

Question No : 29 of 50

Marks: 1 (Time 1 Min)

On which of the following does the critical value for a chi-square statistic rely?

Answer

- The degrees of freedom
- The sum of the frequencies
- The row totals

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Question No : 30 of 50

Marks: 1 (Time 1 Min)

Using a goodness-of-fit test, we can assess whether a set of obtained frequencies differ from a set of _____ frequencies

Answer

- Mean
- Actual
- Predicted

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Question No : 31 of 50

Marks: 1 (Time 1 Min)

For a contingency table, the degrees of freedom is

Answer

- 4
- 9
- 3
- 6

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Question No : 32 of 50

Marks: 1 (Time 1 Min)

In Chi-Square association, presence of attribute is denoted by

Answer

- Capital letters
- Greek letters
- English letters

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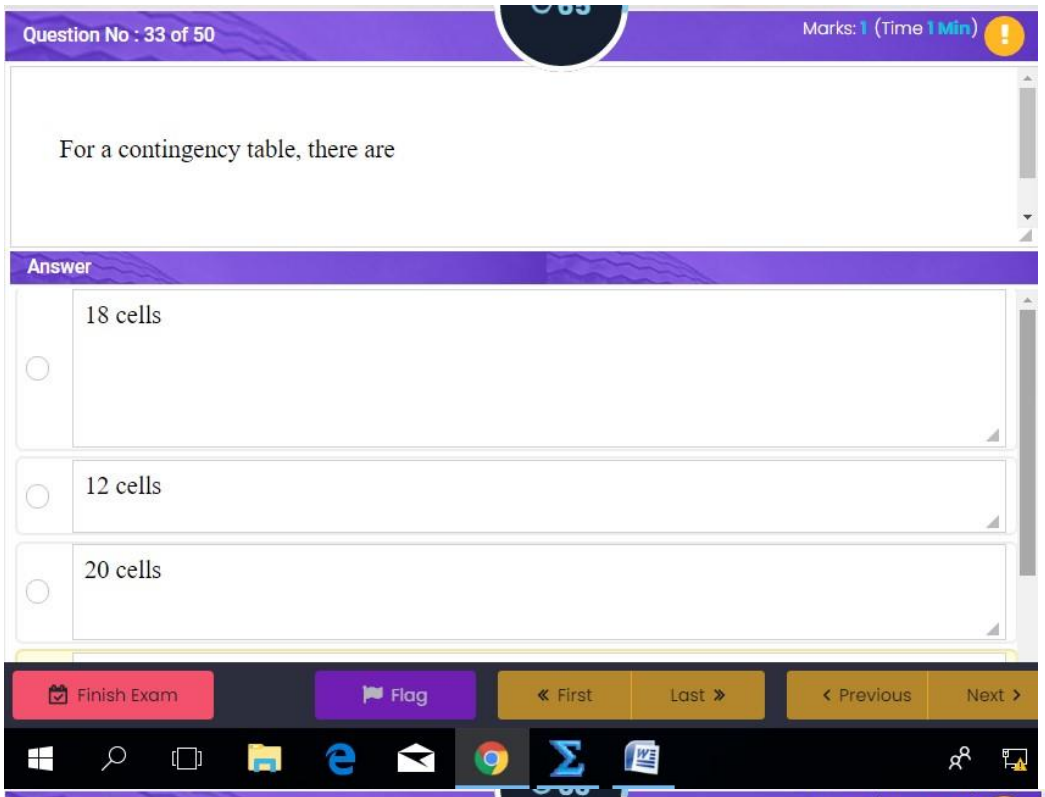


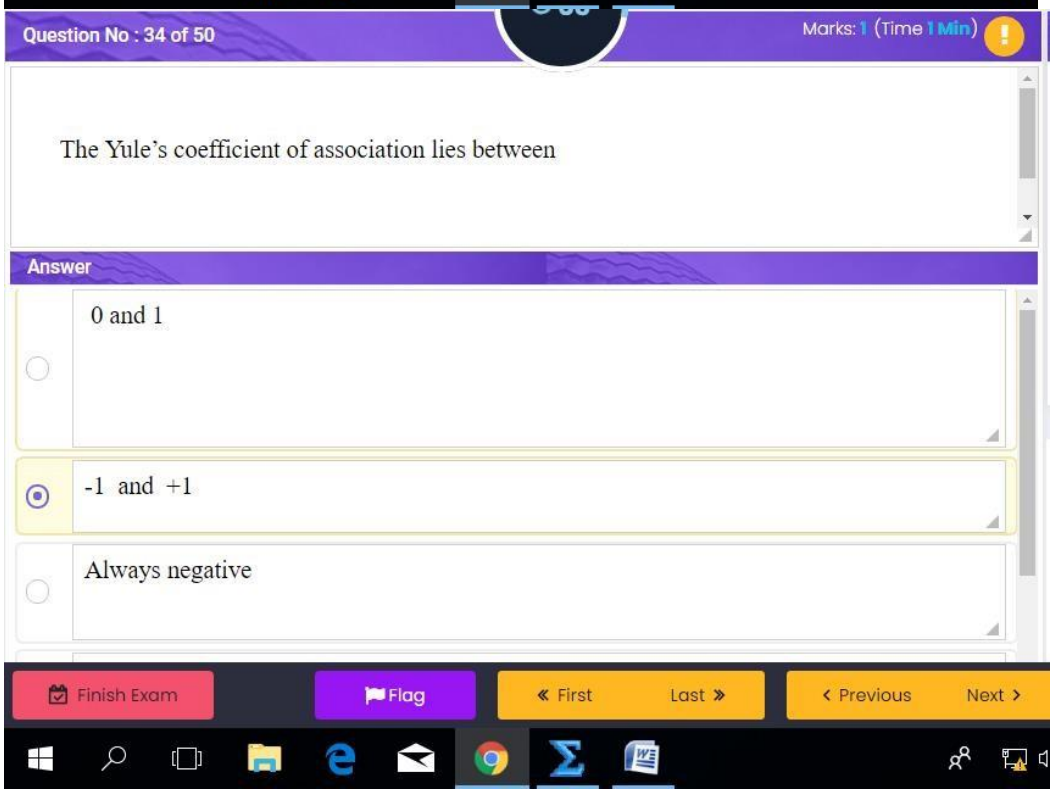

Question No : 35 of 50

Marks: 1 (Time 1 Min)

The chi square distribution is

Answer

- (●) Positively skewed
- ( ) None of these options
- ( ) Negatively skewed

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Question No : 36 of 50

Marks: 1 (Time 1 Min)

The relation between students t and f distribution is

Answer

- ( ) $F_{(1,1)} = \chi^2$
- ( ) $F_{(n,1)} = \chi^2$
- ( ) $F_{(1,n)} = \chi^2$
- (●) All are correct

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Question No : 37 of 50

Marks: 1 (Time 1 Min)

Fishers exact test can be used to test

Answer

- The independence of two attributes
- Equality of proportions in two classes
- Both a and b

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Question No : 38 of 50

Marks: 1 (Time 1 Min)

The credit for deriving the F distribution goes to

Answer

- R. A Fisher
- G.W. snedecor
- W.S Gosset
- All of these.

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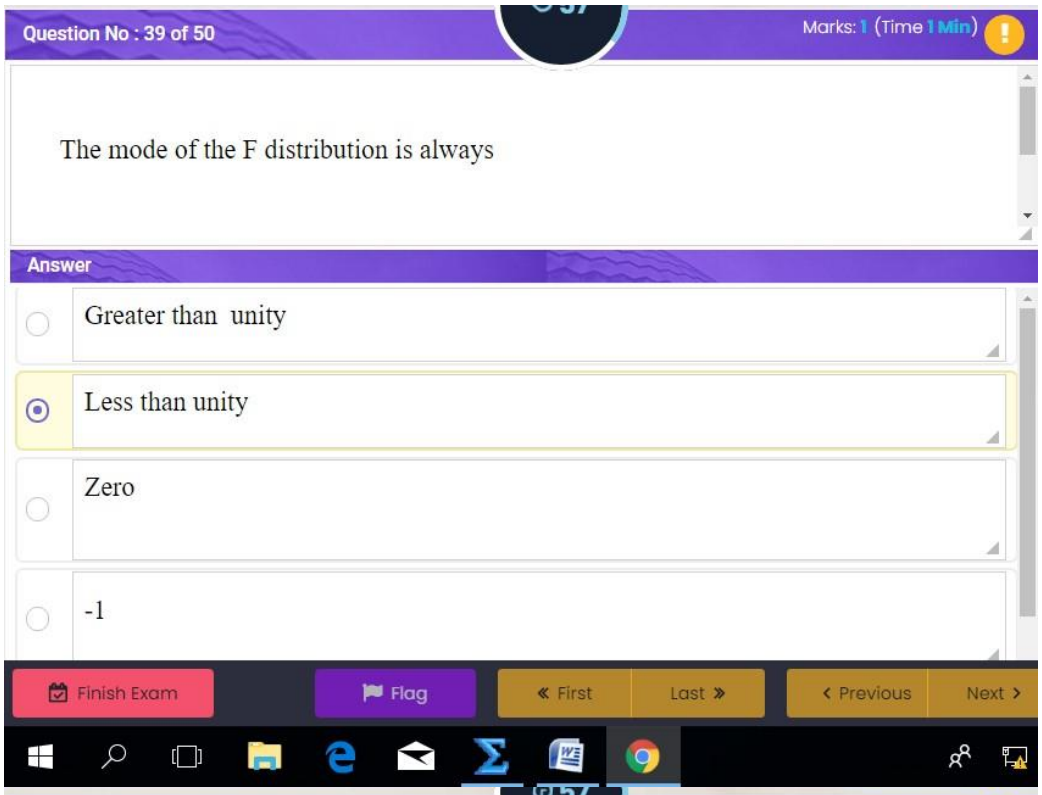


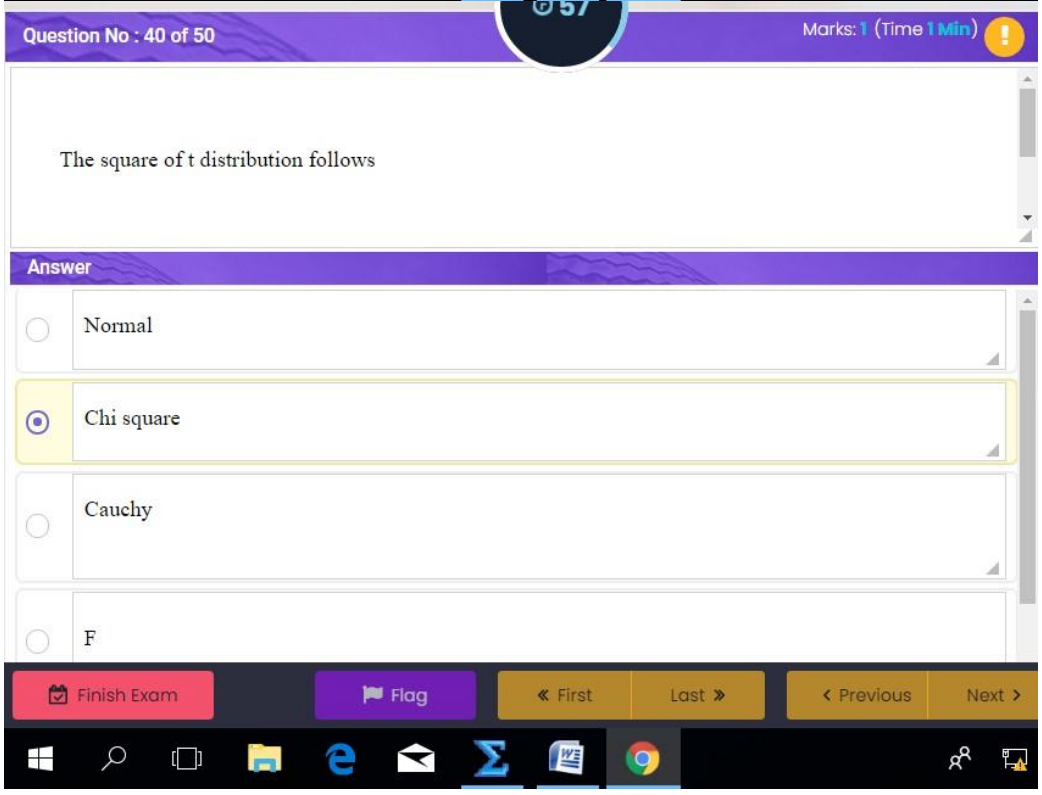

Question No : 48 of 50

Marks: 5 (Time 10 Min)

From the given data $n = 1340, x = 723, p = 0.54$ and $H_0 : P_0 = 0.5 against H_1 : P_0 \neq 0.5$.

Carry out the significance test for the stated hypothesis by using a = 0.05

Answer

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From the given data $n = 1340, x = 723, p = 0.54$ and $H_0 : P_0 = 0.5 against H_1 : P_0 \neq 0.5$.

Carry out the significance test for the stated hypothesis by using a = 0.05

Answer:

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Question No : 46 of 50

Marks: 3 (Time 6 Min)

Write any of three assumptions of t distribution:

Answer

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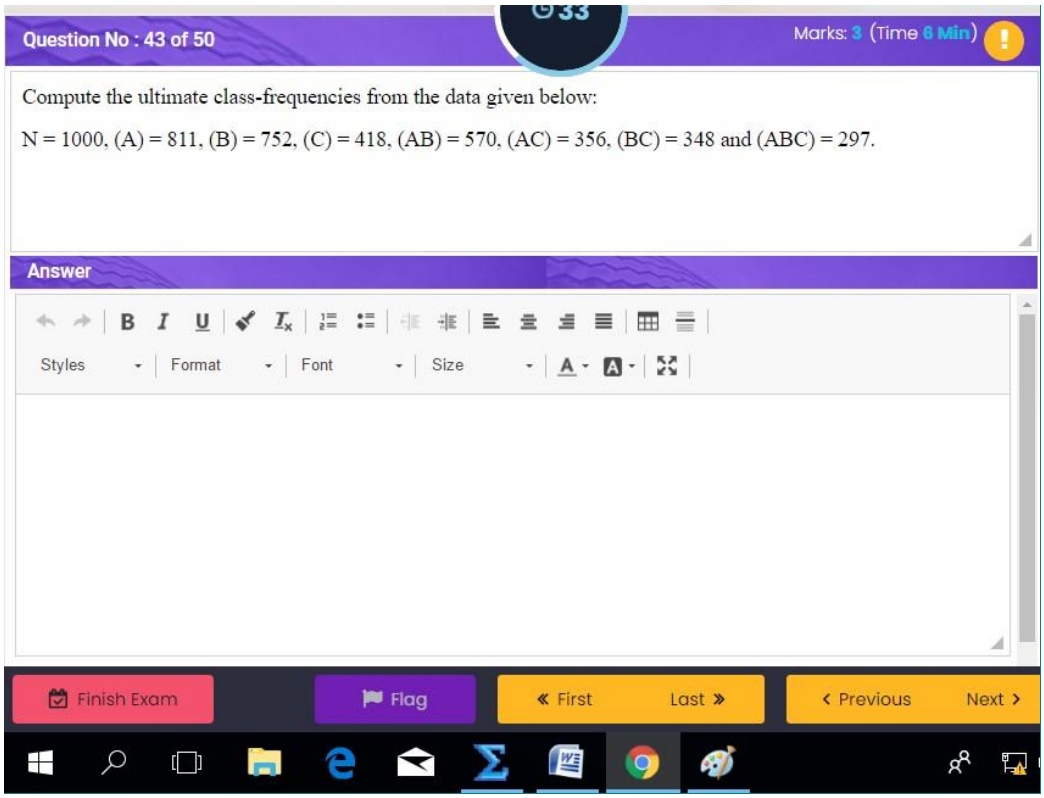

Question No : 44 of 50

Marks: 3 (Time 6 Min)

Formulate 99% confidence interval for population variance.

Answer

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Question No : 42 of 50

Marks: 3 (Time 6 Min)

Write down the critical region for the following hypothesis at 5% level of significance. Also find the table value at 5% level of significance.

$H_0: \mu_1 - \mu_2 = 111$

$H_1: \mu_1 - \mu_2 > 111$

Answer

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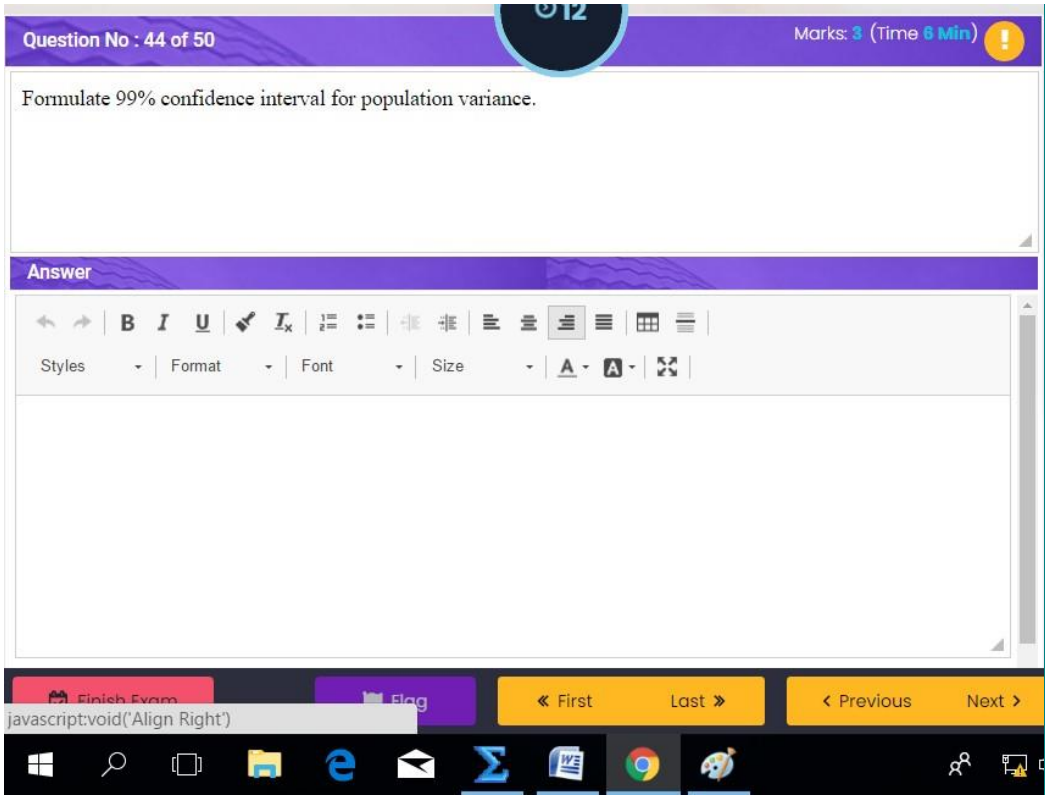


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