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Question # 30 of 30

SOLVED BY: WAQAR HUSSAIN

One of the purpose of randomization is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Perform the statistical analysis
- To remove the bias and sources of extraneous variation (Lecture No.1)
- Reduce the cost
- to include as many as possible factors in the model

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Question # 29 of 30

SOLVED BY: WAQAR HUSSAIN

In a completely randomized design, a treatment sum of squares is SSTr and its corresponding degree of freedom is k-1, the error sum of squares is SSE with degree of freedom n-k, the mean square treatment (MSTr) will be

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ SSTr/SSE
- ○ k−1/SSTr
- ● SSTr/k−1 (Lecture No.2)
- ○ SSTr/n−k

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Question # 27 of 30

SOLVED BY: WAQAR HUSSAIN

If there are 8 treatments and 4 blocks contain one missing observation in RCBD, then the error degrees of freedom is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- 22
- 20 (Lecture No.4)
- 25
- 36

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Question # 28 of 30

SOLVED BY: WAQAR HUSSAIN

An experimental design where the experimental units are appear once and only once in each direction

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ Fractional Factorial design
- ● Latin Square design (Lecture No.5)
- ○ Randomized Complete Block design
- ○ Completely Randomized design

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Question # 25 of 30

SOLVED BY: WAQAR HUSSAIN

The alternative hypothesis in a completely randomized design is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ All treatment means are equal.
- ● Not all treatment means are equal. (Lecture No.2)
- ○ Addition of all treatment means is equal to 1.
- ○ Subtraction of all treatment means is equal to 1.

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Question # 26 of 30

SOLVED BY: WAQAR HUSSAIN

If there are 7 treatments with 4 blocks in a Randomized Complete Block Design (RCBD) then the degrees of freedom for error are

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ 19
- ○ 20
- ○ 25
- ● 18 (Lecture No.3)

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Question # 21 of 30

SOLVED BY: WAQAR HUSSAIN

For a Latin Square design, the SSE can be obtained using the formula

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ $SSE = SST + SSTr + SSR + SSC$
- ○ $SSE = SST - SSTr + SSR + SSC$
- ● $SSE = SST - SSTr - SSR - SSC$ (Lecture No.6)
- ○ $SSE = SST + SSTr - SSR - SSC$

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Question # 4 of 30

SOLVED BY: WAQAR HUSSAIN

One of the purpose of experimental design is to

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Increase the experimental error
- None of these
- Reduce the experimental error (Lecture No.1)
- Perform the statistical analysis

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Question # 23 of 30 **SOLVED BY: WAQAR HUSSAIN**

The efficiency of Randomized Complete Block design (RCBD) relative to Completely Randomized design (CRD) can be obtained using the formula

Select the correct option **PRESENTED BY: TALEEMI MARKAZ**

- ○ $RE(RCBD, CRD) = \frac{Estimated\ MSE\ for\ RCBD - 2}{3 \times MSE\ for\ the\ CR\ design}$
- ● $RE(RCBD, CRD) = \frac{Estimated\ MSE\ for\ CR\ design}{MSE\ for\ the\ RCBD}$ (Lecture No.4)
- ○ $RE(RCBD, CRD) = \frac{3 \times Estimated\ MSE\ for\ CR\ design}{MSE\ for\ the\ RCBD + 3}$
- ○ $RE(RCBD, CRD) = \frac{Estimated\ MSE\ for\ (RCBD + CR\ design)}{MSE\ for\ the\ CR\ design}$

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Question # 22 of 30 **SOLVED BY: WAQAR HUSSAIN**

The formula for the efficiency of Latin Square design relative to RCBD when rows are removed as blocks, is

Select the correct option **PRESENTED BY: TALEEMI MARKAZ**

○	$\frac{1}{k}\left[\frac{s_r^2}{s_e^2}+(k-1)\right]$
○	$\frac{1}{k}\left[\frac{s_c^2}{s_r^2}+(2k-1)\right]$
○	$\frac{1}{k}\left[\frac{s_r^2}{s_e^2}+(k^2-1)\right]$
●	$\frac{1}{k}\left[\frac{s_c^2}{s_e^2}+(k-1)\right]$ (Lecture No.7)

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Question # 24 of 30 **SOLVED BY: WAQAR HUSSAIN**

To find the possible Latin squares of "$k \times k$" Latin Square design, we use the formula

Select the correct option **PRESENTED BY: TALEEMI MARKAZ**

- ○ $k!\,(2k-1)!$
- ● $k!\,(k-1)!$ (Lecture No.5)
- ○ $2k!\,(k-1)!$
- ○ $k!\,(k-2)!$

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Question # 18 of 30

SOLVED BY: WAQAR HUSSAIN

Planning an experiment to obtain appropriate data and drawing inference out of the data with respect to any problem under investigation is known as

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ Design and Statistical Inference
- ○ Probability and Probability Distributions
- ○ Laboratory Experiment
- ● Design and Analysis of Experiment (Lecture No.1)

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Question # 20 of 30

SOLVED BY: WAQAR HUSSAIN

A teacher practices the different teaching methods on different groups in her class to see which yields the best results. In this example, a treatment is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Different teaching methods (Lecture No.1)
- Teacher
- Class
- Different groups

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Question # 8 of 30

SOLVED BY: WAQAR HUSSAIN

The term 'local of control' refers to the

Select the correct option

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- Amount of balancing, blocking and grouping of experimental units (Lecture No.1)
- Replication of experiment
- Control of extraneous variations
- Selection of experimental units

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Question # 19 of 30

SOLVED BY: WAQAR HUSSAIN

The formula for the efficiency of Latin Square design relative to RCBD when columns are removed as blocks, is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ $\frac{1}{k}\left[\frac{s_c^2}{s_r^2} + (k-1)\right]$
- ● $\frac{1}{k}\left[\frac{s_r^2}{s_e^2} + (k-1)\right]$ (Lecture No.7)
- ○ $\frac{1}{k}\left[\frac{s_c^2}{s_r^2} + (2k-1)\right]$
- ○ $\frac{1}{k}\left[\frac{s_r^2}{s_e^2} + (k^2-1)\right]$

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Question # 17 of 30

SOLVED BY: WAQAR HUSSAIN

In ANOVA, the observations must be

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- [x] Independent (Lecture No.2)
- [ ] Dependent
- [ ] Skewed to left
- [ ] Skewed to right

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Question # 13 of 30

SOLVED BY: WAQAR HUSSAIN

Experiment is performed on

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ Laboratory Experiments
- ○ Field Plot
- ○ Sampling Frame
- ● Experimental Unit (Lecture No.1)

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Question # 14 of 30

SOLVED BY: WAQAR HUSSAIN

If in a CRD the experimental units are heterogeneous then the design is

Select the correct option

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- ○ Least sufficient
- ○ Most efficient
- ○ Most sufficient
- ● Least efficient

(Lecture No.2)

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Question # 16 of 30

SOLVED BY: WAQAR HUSSAIN

'Blocking' refers to

Select the correct option

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- ○ Binding of homogeneous and heterogeneous experimental units in
- ○ Heterogeneous group of experimental units
- ● Homogeneous group of experimental units (Lecture No.1)
- ○ None of these

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Question # 15 of 30

SOLVED BY: WAQAR HUSSAIN

Analysis of variance is used to test the

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Equality of three or more population variances
- Equality of two population means
- Equality of two population variances
- Equality of three or more population means (Lecture No.1)

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Question # 12 of 30

SOLVED BY: WAQAR HUSSAIN

In a RCBD, the variation is decomposed into

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Treatment, Blocks and Error (Lecture No.3)
- Treatments and Error
- Treatments and Blocks
- Blocks and Error

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Question # 11 of 30

SOLVED BY: WAQAR HUSSAIN

Experimental error may be due to the

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- [x] All of these (Lecture No.1)
- [ ] Extraneous Factors
- [ ] joint effect of treatment and experimental units
- [ ] Natural variation among the experimental units

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Question # 10 of 30

SOLVED BY: WAQAR HUSSAIN

A factor of an experiment is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Experimental Unit
- Controlled Independent Variable (Lecture No.1)
- Controlled Dependent Variable
- Treatment

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Question # 9 of 30

SOLVED BY: WAQAR HUSSAIN

The random process of assigning treatments to the experimental units can be done by

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ Researcher's own choices
- ● Using random numbers table (Lecture No.1)
- ○ None of these
- ○ Repeating the basic experiment

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Question # 6 of 30

SOLVED BY: WAQAR HUSSAIN

The purpose of randomization is to

Select the correct option

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- Layout the experiment
- Remove the bias and sources of extraneous variation (Lecture No.1)
- None of these
- Replicate the experiment

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Question # 3 of 30

SOLVED BY: WAQAR HUSSAIN

In a Randomized Complete Block design with one missing observation, a sum of squares for error (SSE) is 12 and (k-1)(r-1)=4, the value of mean square error MSE will be

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

○	3
●	4 (Lecture No.4)
○	6
○	8

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Question # 5 of 30

SOLVED BY: WAQAR HUSSAIN

If there are 5 treatments and 5 blocks contain one missing observation in RCBD, then the error degrees of freedom for blocks is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- ○ 6
- ○ 5
- ○ 3
- ● 4 (Lecture No.4)

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Question # 2 of 30

SOLVED BY: WAQAR HUSSAIN

A factor is a _____ of treatments.

Select the correct option

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- ○ Experimental error
- ○ Design Layout
- ◉ Category (Lecture No.1)
- ○ None of these

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Question # 1 of 30

SOLVED BY: WAQAR HUSSAIN

Assume that each treatment "k" is replicated three times within each block, so that each block contains the plots

Select the correct option

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- ○ k/3
- ○ 9k
- ● 3k (Lecture No.4)
- ○ n/k

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