Skeâ ÙeeÂeÛÚkeâe KeC[keâ DeeYekeâuhevee keâe mejÛevee SJe eJeMue<eCe eJeeOe oeepeS~ CRD SJe RBD o#eleeDee keâe leuevee Yee keâeepeS~

Unit-III / FkeâeF-III

6. How do you estimate two missing values in RBD? Give its analysis.
Skeâ ÙeeÂeÛÚkeâekeâle KeC[keâ DeeYekeâuhevee ce oe uehle Øe#eCee keâe Deekeâueve leohejvle Fmekeâe eJeMue<eCe keâme keâjle n?

7. Give complete analysis of Latin square design. Also obtain an expression for critical difference for testing two treatment means.
ueeŠve Jeie DeeYekeâuhevee keâe heCe eJeMue<eCe eJeeOe oeepeS leLee oe GheÛeejle keâ ceeOÙee keâe hejle#eCe keâjve keâ eueS ›eâeevlekeâ Devlej %eele keâeepeS~

Unit-IV / FkeâeF-IV

8. Why factorial experiments are preferred to other experiments? Explain the method of calculating sum of squares for main and interaction effect in a 2^2 factorial experiment.
yenGheeoeveeÙe ØeÙeeiee keâe omej ØeÙeeiee keâe leuevee ce yenlej keÙee ceevee peelee n? Skeâ 2^2–yenGheeoeveeÙe ØeÙeeie ce ceKÙe SJe DevÙeevÙe ØeYeeJe keâ Jeie Ùeeie keâe ieCevee keâjve keâe eJeeOe mecePeeFS~

9. What is factorial experiment? Give in detail the analysis of a 2^3 factorial experiment conducted in r randomized blocks.
leŠkeâeÙe ØeÙeeie keÙee n? Ùeeo 2^3–ØeÙeeie r-ÙeeÂeÛÚkeâekeâle KeC[keâe ce ekeâÙee ieÙee ne, lee eJeMue<eCe keâe eJemleej me e

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(Printed Pages 4)

Roll No. _____

S-705

B.Sc. (Part-II) Examination, 2015

(Regular & Exempted)

STATISTICS

Third Paper

(Analysis of Variance & Design of Experiments)

Time Allowed : Three Hours] ***[Maximum Marks : 50***

Note : Answer Five questions in all. Question No. 1 is compulsory and one question from each unit.
keâue heeÛe ØeMvee keâ Gòej oeepeS~ ØeMve me. 1 DeeveJeeÙe n Deej ØelÙekeâ FkeâeF me Skeâ ØeMve keâeepeS~

1. (a) What are the basic principles of experimental design? Describe.
ØeeÙeeeiekeâ DeeYekeâuhevee keâ ceueYele emeæevle keÙee n? eJeJeÛevee keâeepeS~

(b) Define critical difference.
›eâeevlekeâ Devlej keâe heejYeee<ele keâeepeS~

(c) What are the underlying assumption of the analysis of variance?
Øemejce eJeMue<eCe keâe keâuheveeS keÙee n?

(d) State the mathematical model used in analysis of variance of two way classifi-

cation with m observations per cell.
ØelÙekeâ meue ce m Øe#eCe Jeeue eÉOee Jeieekeâle ØemejCe eJeMue<eCe keâe ieeCeleeÙe Øeele™he eueeKeS~

(e) Define Precision.
heejMeælee keâe heejYee<ee eueeKeS~

(f) Define Interaction.
DevÙeevÙe e>eâÙee keÙee n? heejYeee<ele keâeepeS~

(g) In a Latin square design, 1 observation is missing, write the degrees of freedom of ANOVA table.
Skeâ ueeŠve Jeie DeeYekeâuhevee ce 1 Øe#eCe uehle n, ANOVA leeeuekeâe keâe mJeelev$eÙe keâeeŠ eueeKeS~

(h) In an analysis of variance problem for one-way classification, observations with 3 classes and 3 observations per class, the calculated F is 2.5 and total sum of squares is 22. What will be the mean sum of square between classes?
SkeâOee Jeieekeâle Øe#eCee keâ eueS, epemece 3 Jeie leLee ØelÙekeâ Jeie ce 3 Øe#eCe n, keâ ØemejCe eJeMue<eCe mecemÙee ce F keâe heejkeâeuele ceeve 2.5 leLee mekeâue Jeie Ùeeie 22 n, lee Jeiee keâ yeeÛe ceeOÙeJeie Ùeeie keÙee neiee?

(i) In a RBD, if error sum of squares is 90, Mean error sum of squares is 22.5 and the no. of plots in each block is 3. Then what will be the total degrees of freedom?
Skeâ ÙeeÂeÛÚkeâ KeC[keâ DeeYekeâuhevee ce $eeŠ Jeie Ùeeie

90, ceeOÙe $eeŠ Jeie Ùeeie 22.5 SJe ØelÙekeâ KeC[keâ ce hueeŠe keâe meKÙee 3 ne, lee keâue mJeelev$eÙe keâeeŠ ekeâlevee neiee?

(j) In a 2^3-experiment with factors L, M and N write down the effect [L].
Skeâ 2^3-yenGheeoevee DeeYeØeÙeeie ce L, M leLee N keâejkeâe meenle, keâejkeâ [L] keÙee neiee?

Unit-I / FkeâeF-I

2. What is analysis of covariance? Give in detail the analysis of covariance when it is carried out in one-way classified data.
menØemejCe eJeMue<eCe keÙee n? Ùeeo Deekeâ[SkeâOee Jeieekeâle ne, lee menØemejCe eJeMue<eCe keâ eJeeYeVe henueDee keâe eJemleej me eueeKeS~

3. Give in detail the analysis of variance for two way classification with m(>1) observations. per cell.
ØelÙekeâ keâe‰ ce m(>1) Øe#eCe Jeeue eÉOee Jeieekeâle Deekeâ[e nle ØemejCe eJeMue<eCe keâe JÙeeKÙee keâeepeS~

Unit-II / FkeâeF-II

4. Describe the basic principles of design of experiments with suitable examples and mention their roles.
GheÙeòeâ GoenjCee Éeje DeeYekeâuhevee ØeÙeeie keâ ceKÙe emeæevle keâe JeCeve keâeepeS SJe Gvekeâ cenlJee keâ eJe<eÙe ce yeleeFS~

5. Give the layout and analysis of RBD compare the efficiency between CRD and RBD.