B.N. Bandodkar College of Science, Thane

Additional Exam. June 2015

S.Y.-B.Sc. Second Term End Examination ~~MARCH~~ ~~2015~~

Statistics Paper II (USST402)

Duration 2 hrs 30min] [Max Marks-75

N.B. 1) All Questions are compulsory.
2) Figures to right indicate marks.

Q.1) a) Explain 'Analysis of variance' by considering causes of variation. (10)
State assumptions of analysis of variance.

b) State model for one way classification. In usual notations represent the data in one way table. How do you split total sum of squares into various components to be stated. Write the ANOVA table by giving the formulae used. (10)

OR

Q.1) a) Explain two way classification. (10)
Derive the least squares estimators of the various parameters in the model.

b) Obtain expected value of error sum of squares in two way classification with usual notations. (10)

Q.2) a) Explain the terms :-
(i) Block (3)
(ii) Experimental Error (3)
(iii) Randomization (4)

b) State the model for completely randomized design (CRD) hypothesis to be tested. How do you test for a pair of treatments? (10)

OR

Q.2) a) Give the layout of randomized block design (RBD) with 4 treatments and 3 Blocks. Also give hypothesis to be tested and ANOVA table with formulae for this design.. (10)

b) Obtain expected value of mean sum of squares due to blocks in randomized block design with k treatments and r blocks. (10)

Q.3) a) Explain latin square design (LSD). Also give ANOVA table. (10)

b) Derive formula for estimating single missing observation in mxm LSD (10)

OR

Q.3) a) Derive formula for estimating single missing observation in RBD. (10)

b) Explain ' Factorial Experiments '. (10)
State advantages and disadvantages of factorial experiments.

Q.4) a) Obtain the expression for efficiency of RBD as compared to CRD in usual notations. (8)

b) Explain 2^3 factorial experiment conducted in RBD. Give the analysis of this design. (7)

OR

Q.4) a) State model for LSD and obtain least squares estimators of various parameters in the model. (7)

b) What do you understand by factorial experiments?
Give analysis of 2^3 factorial experiment conducted in RBD with r blocks. (8)

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