

**B.N. Bandodkar College of Science, Thane**

**S.Y. B.Sc. Second Term End Examination MARCH 2017**

**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'. (10)  
Also state its assumptions.  
b) What do you understand by one way classification and two way classification? In usual notations explain the procedure for estimating various parameters in one way classification model. (10)

OR

- Q.1) a) Explain procedure of analysis of two way classification data by giving AVOVA table. (10)  
b) Obtain expected value of error sum of squares in two way classification with usual notations. (10)

- Q.2) a) Explain the terms (2)  
(i) Treatment (3)  
(ii) Block (3)  
(iii) Local control (5)  
b) Explain completely randomized design (CRD) (10)

OR

- Q.2) a) Explain on which principles of designs randomized block design (RBD) is based? Also explain how these principles are incorporated in RBD. (10)  
b) Obtain expected value of sum of squares due to blocks in randomized block design in usual notations. (10)

- Q.3) a) Explain latin square design (LSD) with reference to principle of local control. Give the ANOVA table for 3x3 LSD. (10)  
b) State the model for LSD and drive the estimators of various parameters in the model. (10)

OR

- Q.3) a) In  $m \times m$  LSD obtain the expected value of sum of squares due to rows. (10)  
b) Explain ' Factorial Experiments '. (10)  
In short give analysis of  $2^2$  factorial experiment conducted in RBD with  $r$  blocks.
- Q.4) a) Derive formula for estimating single missing observation in RBD. (8)  
b) Obtain the expression main effect A and interaction AB in  $2^2$  factorial experiment conducted in RBD with  $r$  blocks. (7)

OR

- Q.4) a) Derive formula for estimating single missing observation in  $m \times m$  LSD. (8)  
b) Explain Yates' procedure for  $2^3$  factorial design. (7)

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