2017

STATISTICS

[Honours]

PAPER – VIIA

Full Marks : 40

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

[NEW SYLLABUS]

GROUP – A

(Analysis of Variance and Covariance and Design of Experiments)

1. Answer any *four* questions : 5 × 4

(*a*) Give layout of split plot design for an RBD. How does it differ from factorial experiment ?

(*b*) Give two Latin Squares of order 4 × 4 which are mutually orthogonal.

(*c*) Show that the efficiency of a RBD is always greater than that of CRD.

(*d*) How do you obtain factorial effect total for a 2^3 design using Yates method.

(*e*) What is 'critical difference' ? Discuss its use.

(*f*) What is local control ? How is it used in RBD and LSD ?

(*g*) Distinguish between 'Fixed', 'Random' and 'Mixed' model.

2. Answer any *two* questions : 10 × 2

(*a*) How do you test whether there is any relationship between two variables when there are different levels of an independent variable and for each level there are several number of observations of an dependent variable ? If you get any relationship how do you test whether the relationship is linear or not.

(*b*) Discuss Yates' missing plot technique. How do you use this technique to analyze an LSD when one observation is missing ?

(*c*) Discuss the problem of selecting valid error in relation to a two way classified data with more than one observation per cell under fixed and random effect model.

(*d*) What do you mean by "Confounding" ? Distinguish between total and partial confounding. Give the layout of a $(2^5, 2^2)$ design where the effect ABC and ADE are confounded. Identify the principal block.
