TKN/KS/16 – 5930

Sixth Semester B. Sc. (CBS) Examination

STATISTICS

Paper - II

Experimental Designs

Time : Three Hours] [Max. Marks : 50

N. B. : All the questions are compulsory and carry equal marks.

1. (A) Give the complete statistical analysis of two way classified data with one observation per cell.

OR

(E) Give complete analysis of one–way classified data with equal number of entries in each class. 10

2. (A) Give a layout of a C.R.D. and explain the situations when it is used. Discuss its merits and demerits. State the mathematical model and describe various terms involved in it. Write the ANOVA table.

OR

(E) Discuss the three principles of design of experiments. What are uniformity trials ? Explain their use. 10

3. (A) What is meant by a randomised block design ? Give the analysis of variance for the design, stating clearly the mathematical model and the underlying assumptions.

OR

(E) State the mathematical model of LSD and give a layout of (5×5) L.S.D. Give the assumptions and applications of LSD in field experimentations. Give the ANOVA table for LSD, stating various formulae for S.S., M.S.S. and F. Give the merits and demerits of LSD. 10

4. (A) Show that in a 2^3–factorial experiment, main effects A, B and C are orthogonal to each other. Explain yate's method of calculating factorial effect totals in a 2^3–factorial experiment.

OR

(E) Carry out complete statistical analysis of a 2^2–factorial experiment arranged in RBD. 10

5. Solve any **ten** of the following :—

(A) Define linear parametric function.

(B) State any one assumption involved in ANOVA Technique.

(C) Define BLUE.

(D) Define efficiency of a design.

(E) Define experimental error.

(F) What are d.f. for ESS in CRD ?

(G) What is a standard Latin square ?

(H) Give the formula for SE. of difference between treatment means in case of RBD.

(I) How is LSD an improvement over RBD ?

(J) State any one advantage of factorial experiments.

(K) Define a treatment contrast.

(L) Give an expression for interaction effect AB in, a 2^2 factorial experiment. 1X10=10