

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2019
(Sixth Semester)

Branch – STATISTICS

DESIGN OF EXPERIMENTS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 Write any two basic assumption of ANOVA.
- 2 Define mean sum of squares.
- 3 Write the linear model of C.R.D.
- 4 State any two advantages of R.B.D.
- 5 Define 2^3 – factorial design.
- 6 Define 2^4 – factorial design.
- 7 What do you mean by confounding?
- 8 Define 3^2 experiment.
- 9 Define BIBD.
- 10 Write down the linear model of split plot design.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Explain the mathematical model of one-way classification.
OR
b Distinguish between (a) Fixed effect model (b) Random effect model in the analysis of variance.
- 12 a Compare the efficiency of RBD relative to CRD.
OR
b Explain the analysis of variance table in LSD.
- 13 a Explain the main effect and interaction effect in 2^2 experiment.
OR
b Explain the Yates procedure of computing main and interaction effect table in a 2^3 – factorial experiment.
- 14 a Bring out the layout of 3^2 – factorial experiment.
OR
b Explain the principle of confounding in factorial experiment.
- 15 a Establish relationships among its parameters of BIBD.
OR
b Describe a split plot experiment. How does it differ from RBD?

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Bring out the analysis of two-way classification.
- 17 Describe the principles of randomization a' replication and mention their uses.
- 18 Explain fully the analysis of 2^3 factorial experiment.
- 19 Explain the analysis of 2^3 confounding design.
- 20 "Split plot designs are sometimes referred to as factorial designs with main effects confounded" – Discuss.