M. Sc. (Statistics) (Sem. IV) (CBCS) Examination

April / May - 2017

STAT.CST-4001 : Advance Design of Experiments

Faculty Code : 003

**Subject Code : 017401**

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions : (1) Attempt all questions.

(2) Each question carries equal marks.

1 Answer the following questions : (any **seven**)   **14**

(1) In RBD variance of treatment contrast is _____.

(2) If the level of all the factors are at lower level it is called as _____.

(3) All Randomized Block Designs are _____.

(4) If _____ then m - ple lattice design is called balanced lattice design.

(5) A group divisible design is said to be Semi regular group divisible design if it satisfies _____ and _____.

(6) V=4 , b=6, r=3 and k=2 then parameters of dual design are _____.

(7) Find out the level and factor of this _____.
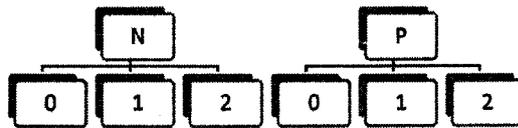
(8) For BIB Design E = _____ and efficiency is always _____.

(9) _____ gave a concept of weighing design.

(10) General combined ability of CDC plan is given as: _____.

2 Answer the following questions : (any **two**)   **14**

(1) Prove that $\sum_{i=1}^{m} n_i \lambda_i = r(k-1)$

(2) Write all steps to construction of MOLSD and find GF(7).

(3) Explain Intrablock Analysis of Two Associate PBIBD.

3 Answer the following questions : **14**

(1) Explain PBIBD & Association Scheme.

(2) Find out the Eigen value of given Cyclic PBIBD Design

$$
\begin{array}{cc}
1 & 2 \\
2 & 3 \\
\text{and write its parameters} \quad 3 & 4 \\
4 & 1
\end{array}
$$

OR

3 Answer the following questions : **14**

(1) Explain Triangular Type PBIB Design with an example.

(2) Construct following BIBD using Projective Geometry.
V=15, b=15, r=7, k=7, λ=3.

4 Answer the following questions : (any **two**) **14**

(1) Define following :

(i) Group Divisible Design

(ii) Semi regular G.D.D.

(iii) Cyclic PBIBD Design

(2) Construct CDC plan for give Parameters. V=6, b=6, r=5, k=5, λ=4.

(3) Define following Terms :

(i) LSD

(ii) MOLSD

(iii) Galois field.

5 Answer the following questions : (any **two**) **14**

(1) Define following Terms :

(i) Resolvable BIBD

(ii) Affine Resolvable BIBD.

(2) Explain Analysis of CDC plan.

(3) Explain BIBD using Hadamard matrix with an example.

(4) Explain Analysis of BIBD.