

A NOTE ON CONSTRUCTION OF TRIANGULAR P.B.I.B. DESIGN

WITH PARAMETERS $v = 21, b = 35, r = 10,$

$k = 6, \lambda_1 = 2$ AND $\lambda_2 = 3$

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Chang, Liu and Liu (1965) gave 18 sets of unsolved parameter combinations of triangular designs in the range $r, k \leq 10$. Out of these 18, the solution for the triangular design with parameters $v = 21, b = 35, r = 10, k = 6, \lambda_1 = 2$ and $\lambda_2 = 3$ is obtainable and is given in the present note.

B.I.B. design with parameters $v = 21, b = 42, r = 12, k = 6$ and $\lambda = 3$ can be obtained [cf. Raghavarao (1971)] from initial sets $(0_1, 5_1, 1_2, 4_2, 2_3, 3_3); (0_1, 1_1, 3_1, 0_2, 1_2, 3_2); (0_2, 5_2, 1_3, 4_3, 2_1, 3_1); (0_2, 1_2, 3_2, 0_3, 1_3, 3_3); (0_3, 5_3, 1_1, 4_1, 2_2, 3_2)$ and $(0_3, 1_3, 3_3, 0_1, 1_1, 3_1)$ by developing modulus in the sense of Bose (1939). The first set when generated gives a triangular P.B.I.B. design with parameters $v = 21, b = 7, r = 2, k = 6, \lambda_1 = 1, \lambda_2 = 0$ with the following association scheme:

×	0_1	5_1	1_2	4_2	2_3	3_3
0_1	×	6_2	2_1	5_3	3_2	4_3
5_1	6_2	×	0_3	3_1	1_3	2_2
1_2	2_1	0_3	×	6_3	4_1	5_2
4_2	5_3	3_1	6_3	×	0_2	1_1
2_3	3_2	1_3	4_1	0_2	×	6_1
3_3	4_3	2_2	5_2	1_1	6_1	×

Deleting these 7 sets from the 42 sets of the B.I.B. design, we get the triangular P.B.I.B. design with parameters $v = 21, b = 35, r = 10, k = 6, \lambda_1 = 2$ and $\lambda_2 = 3$.

REFERENCES

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