Package 'ResPBIBD'

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Type Package

Title ``Resolvable Partially Balanced Incomplete Block Designs (PBIBDs)''

Version 0.1.0

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Description A collection of several utility functions related to resolvable and affine resolvable Partially Balanced Incomplete Block Designs (PBIBDs), have been developed. In the class of resolvable designs, affine resolvable designs are said to be optimal, Bailey (1995) <doi:10.2307/2337638>. Here, the package contains three functions to generate and study the characterization properties of these designs. Developed functions are named as PBIBD1(), PBIBD2() and PBIBD3(), in which first two functions are used to generate two new series of affine resolvable PBIBDs and last one is used to generate a new series of resolvable PBIBDs, respectively. In addition, these functions can also be used to generate design parameters (v, b, r and k), canonical efficiency factors, variance factor between associates and average variance factors of the generated designs. Here v is the number of treatments, b (= b1 + b2, in case of non-proper design) is the number of blocks, r is the number of replications and k (= k1 + k2; k1 is the size of b1 and k2 is the size of b2) is the block size.

Suggests MASS

License GPL-3

Encoding UTF-8

LazyData false

RoxygenNote 7.1.2

NeedsCompilation no

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Contents

PBIBD1 2
PBIBD2 3
PBIBD3 3

Index **5**

PBIBD1 *Affine resolvable PBIB designs*

Description

This function generates a new series of affine resolvable Partially Balanced Incomplete Block Designs (PBIBDs) and its parameters (v, b1, b2, r, k1, k2), canonical efficiency factors, variance factor between associates and average variance factors.

Usage

```
PBIBD1(v, p, q)
```

Arguments

v	Total number of treatments
p	Positive integer (>=2)
q	Positive integer (>=2)

Value

This function generates a PBIB design and its parameters, variance factors and efficiency factor.

Examples

```
library(ResPBIBD)
PBIBD1(12, 4, 3)
```

PBIBD2 *Affine resolvable PBIB designs*

Description

This function generates a new series of affine resolvable Partially Balanced Incomplete Block Designs (PBIBDs) and its parameters (v, b1, b2, r, k1, k2), canonical efficiency factors, variance factor between associates and average variance factors.

Usage

```
PBIBD2(v, s, p, q)
```

Arguments

v	Total number of treatments
s	Positive integer (>=2)
p	Positive integer (>=2)
q	Positive integer (>=2)

Value

This function generates a PBIB design and its parameters, variance factors and efficiency factor.

Examples

```
library(ResPBIBD)
PBIBD2(12, 2, 3, 2)
```

PBIBD3 *Resolvable PBIB designs*

Description

This function generates a new series of resolvable Partially Balanced Incomplete Block Designs (PBIBDs) and its parameters (v, b1, b2, r, k1, k2), canonical efficiency factors, variance factor between associates and average variance factors.

Usage

```
PBIBD3(v, p)
```

Arguments

v	Total number of treatments
p	Positive integer (>=2)

Value

This function generates a PBIB design and its parameters, variance factors and efficiency factor.

Examples

```
library(ResPBIBD)
PBIBD3(12, 4)
```

Index

PBIBD1, 2
PBIBD2, 3
PBIBD3, 3