**Endterm Practical Exam- Design of Experiments**

1. Consider the results given in the following table for an experiment involving six treatments in four randomised blocks. The treatments are indicated by numbers within parenthesis.

|  |  |
| --- | --- |
| Blocks | Yield (kg/ac) |
| 1 | **(1) (3) (2) (4) (5) (6)**  24.7 27.7 20.6 16.2 16.2 24.9 |
| 2 | **(3) (2) (1) (4) (6) (5)**  22.7 28.8 27.3 15 22.5 17 |
| 3 | **(6) (4) (1) (3) (2) (5)**  26.3 19.6 38.5 36.8 39.2 15.4 |
| 4 | **(5) (2) (1) (4) (3) (6)**  17.7 31.0 28.5 14.1 34.9 22.6 |

Test whether the treatments differ significantly, also

(A) Determine the critical difference between the means of any two treatments.

(B) Obtain the efficiency of this design relative to its layout as CRD.

2. An experiment was carried out to determine the effect of claying the ground on the field of barley grains; amount of clay used were as follows;

A: No clay

B: Clay at 100 per acre

C: Clay at 200 per acre

D: Clay at 300 per acre

The yield were in plots of 8 metres by 8 metres and are given in following table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Column | | | |
| Row | I | II | III | IV |
| I | D  29.1 | B  18.9 | C  29.4 | A  5.7 |
| II | C  16.4 | A  10.2 | D  21.2 | B  19.1 |
| III | A  5.4 | D  38.8 | B  24 | C  37 |
| IV | B  24.9 | C  41.7 | A  9.5 | D  28.9 |

(A) Perform the ANOVA and calculate the critical difference for the treatment mean yield.

(B) Calculate the efficiency of the above design over (i) RCBD and (ii) CRD

3. An experiment was conducted in RBD on paddy crop with three factors each at two levels. The factors were,

Paddy variety: Vo: ADT-31

V1 : Vaigai

Plant protection schedule: Po: Old practice

P1: New practice

Irrigation schedule: Wo: Local practice

W1: advanced practice

Yield obtained from three replication was given in below table. Statistically analysis the result and give conclusion.

|  |  |
| --- | --- |
| Replication | Grain Yield (kg/plot) |
| 1 | **(v) (w) (vpw) (vw) (vp) (1) (pw) (p)**  108.2 128.9 116.8 112.4 115.8 122.8 119.8 114.6 |
| 2 | **(vp) (vpw) (pw) (w) (vw) (p) (1) (v)**  108.6 125.3 122.8 129.1 123.8 113.3 127.8 117.6 |
| 3 | **(1) (p) (w) (pw) (v) (vpw) (vp) (vw)**  126.0 119.5 134.6 120.4 107.1 116.5 124.0 115.8 |