**Number one solution**

Let the Judges X, Y and Z be Rx, Ry and Rz

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F | G | H | I | J |
| Rx | 1 | 6 | 5 | 10 | 3 | 2 | 4 | 9 | 7 | 8 |
| Ry | 3 | 5 | 8 | 4 | 7 | 10 | 2 | 1 | 6 | 9 |
| Rz | 6 | 4 | 9 | 8 | 1 | 2 | 3 | 10 | 5 | 7 |
| D1 | =2 | 1 | -3 | 6 | -4 | -8 | 2 | 8 | 1 | -1 |
| D2 | -5 | 2 | -4 | 4 | 2 | 0 | 1 | -1 | 2 | 1 |
| D1^2 | 4 | 1 | 9 | 36 | 16 | 64 | 4 | 64 | 1 | 1 |
| D2^2 | 25 | 4 | 16 | 16 | 4 | 0 | 1 | 1 | 4 | 1 |

D1^2 £d^2 = 200

D2^2 £d^2=  72

FOR P1 = £d^2/ (n(n^2-1)

= 1- 6\*200/10(10^2-1)

- 1 - 1200/990

P1= 1- 1.2

Therefore P1= -0.2

THUS P2 - £d^2/n(n^2-1)

= 1 - 6\*72/10(10^2-1)

= 1- 432/990

= 1-0.44

Therefore P2 = 0.56

**NUMBER TWO SOLUTION**

Total number of calls n(s) = 100%

Total number of calls for business n(e) = 70%

Total number of calls for order n(e) =30%

(i) Probability for 5 order calls

= 5/70% \* 100%

= 50/7

= 7.2

(ii) Probability for 6 order calls

= 6/70% \* 100%

= 60/7

= 8.6