SECURIN ASSESMENT  
 PART – A

1.Total combination:

Die A possible values are {1,2,3,4,5,6}

Die B possible values are {1,2,3,4,5,6}

The number of ways in which r elements can be taken from n elements is nCr

nCr = n! /((n-r)! \*r!) (Combinations from mathematics)

When a die is rolled the number of possible outcomes will be

n = 6 r = 1

6C1 = 6

When two such dice are rolled simultaneously then the possibilities are

6C1\*6C1 = 6\*6 = 36

2.All possible combination:

The logic of first problem can be applied here too with one exception that

instead of counting, we should display the combos.

Die A Die B Possible combos

1 1, 2, 3, 4, 5, 6 (1,1) (1,2) (1,3) (1,4) (1,5) (1,6)

2 1, 2, 3, 4, 5, 6 (2,1) (2,2) (2,3) (2,4) (2,5) (2,6)

3 1, 2, 3, 4, 5, 6 (3,1) (3,2) (3,3) (3,4) (3,5) (3,6)

4 1, 2, 3, 4, 5, 6 (4,1) (4,2) (4,3) (4,4) (4,5) (4,6)

5 1, 2, 3, 4, 5, 6 (5,1) (5,2) (5,3) (5,4) (5,5) (5,6)

6 1, 2, 3, 4, 5, 6 (6,1) (6,2) (6,3) (6,4) (6,5) (6,6)

3.Soln

Probability of combinations

Distribution

|  |  |
| --- | --- |
| X | No. of pairs |
| 2 | (1,1) |
| 3 | (1,2),(2,1) |
| 4 | (2,2),(3,1),(1,3) |
| 5 | (2,3),(3,2),(1,4),(4,1) |
| 6 | (3,3),(4,2),(2,4),(5,1),(1,5) |
| 7 | (3,4),(4,3),(5,2),(2,5),(1,6),(6,1) |
| 8 | (4,4),(6,2),(2,6),(5,3),(3,5) |
| 9 | (6,3)(3,6),(5,4),(4,5) |
| 10 | (5,5),(6,4),(4,6) |
| 11 | (5,6),(6,5) |
| 12 | (6,6) |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| N(X) | 1 | 2 | 3 | 4 | 5 | 6 | 5 | 4 | 3 | 2 | 1 |

Total probability = 6 \* 6 = 36

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| P(X) | 1/36 | 2/36 | 3/36 | 4/36 | 5/36 | 6/36 | 5/36 | 4/36 | 3/36 | 2/36 | 1/36 |

PART – B

Die A

1<=d\_a[i]<=4

Cant repeat

Die -B

1<=d\_b[i]

To Do

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| N(x) | 1 | 2 | 3 | 4 | 5 | 6 | 5 | 4 | 3 | 2 | 1 |

From this

N(2)=N(12)=1

So,only one maximum and minimum

So ,1 max and 1 min in each die

Min(d\_a)=1 max(d\_a)=4

Min(d\_b)=1

Min(d\_a)+max(d\_b)=12

Max(d\_b)=12-4=8

So,d-a must have only one 1,4

d\_b must have one 1,3

so remaining part in d\_a must be 2 2 3,

combinations are 5, but only one can be used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 2 | 2 | 2 | 4 | Wrong |
| 1 | 2 | 2 | 2 | 3 | 4 | Wrong |
| 1 | 2 | 2 | 3 | 3 | 4 | Correct |
| 1 | 2 | 3 | 3 | 3 | 4 | Wrong |
| 1 | 3 | 3 | 3 | 3 | 4 | Wrong |

Because we know d\_b have 1&8.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X+Y | 1 | 2 | 3 | 3 | 3 | 4 |
| 1 | 2 | 3 | 4 | 4 | 4 | 5 |
| 8 | 9 | 10 | 11 | 11 | 11 | 12 |

Here,there are 3 11’s but ours has only two .

All other fails,so d\_a=[1,2,2,3,3,4].

We need to find d\_b.