# Assignment-2 Rubric . . BCS-4F . (15)

**Q1:** (4)

'D' for detection.

using law of total Probability: (1)

$$P(D) = P(F_1)P(D/F_1) + P(F_2)P(D/F_2) + P(F_3)P(D/F_3) + P(F_4)P(D/F_4)$$

(3) working

$$= (0.40)(0.2) + (0.3)\times(0.1) + (0.2\times0.5) + (0.3\times0.2)$$

$$P(D) = 0.27 \quad (1)$$

**Q2** (11)

Given: less than 7 is a low score,

a- X: total risk score for low risk cases.

$x = 2, 3, 4, 5, 6$

Total Sample Points = 36.

Probability distribution: (5) one each

| X | P(X) | Points |
|---|---|---|
| 2 | 1/36 | (1,1) |
| 3 | 2/36 | (1,2)(2,1) |
| 4 | 3/36 | (2,2)(3,1)(1,4) |
| 5 | 4/36 | (2,3)(3,2)(4,1)(1,4) |
| 6 | 5/36 | (1,5)(2,4)(3,3)(4,2)(5,1) |

b- CDF = $F(X) = P(X \le x)$ .. (1)

| X | P(X) | F(X) |
|---|---|---|
| 2 | 1/36 | 1/36 |
| 3 | 2/36 | 3/36 |
| 4 | 3/36 | 6/36 |
| 5 | 4/36 | 10/36 |
| 6 | 5/36 | 15/36 |

(5) one each

$$F(X) \begin{cases} 0 & x<2 \\ 1/36 & 2\le x<3 \\ 3/36 & 3\le x<4 \\ 6/36 & 4\le x<5 \\ 10/36 & 5\le x<6 \\ 15/36 & x\le 6 \end{cases}$$