**Chapter 4 - Assignment 4**

**Simulation Models**

**Problem 1:**

In the following table, the distribution function of random variable X is given

|  |  |
| --- | --- |
| y | f(y) |
| 1 | 0.15 |
| 2 | 0.25 |
| 3 | 0.20 |
| 4 | 0.15 |
| 5 | 0.25 |

1. Is f(x) a probability function? Justify your results.
2. Find mean and variance of x
3. Find P(X≤ 4), P(X<4), P(X≤3), P(x<2), P(X>4), P(2<x<4), P(2≤X≤4)

**Problem 2:**

For an distribution *f(y),* where

$$f\left(y\right)=\left\{\begin{array}{c}\frac{1}{m}e^{-y/m} y\geq 0\\\\\\0 y<0\end{array}\right.$$

1. Is *f(y)* a probability density function?
2. If yes, find P( 2 ≤ *x* ≤ 5)
3. Calculate the mean and variance of *x*