Math-2205 Class Test 04 Section C

1. Identify the value of k for which $f(x) = 4 - kx\,; 0 \leq x \leq \frac{1}{2}$ could be a *pdf* of a random variable X. Find the *cdf* and hence the median of the distribution of X. Also, find $P(X < 0)$ and $P\left(X \geq \frac{1}{4}\right)$. [6]

2. Consider the distribution $U(5,10)$ of a random variable X. Find the graph of *pdf* and *cdf* of X. Also, estimate $P(6 < X < 9)$. [4]

Math-2205 Class Test 04 Section E

1. Identify the value of k for which $f(x) = ke^{-3x};\ 0 \le x < \infty$ could be a *pdf* of a random variable X. Find the *cdf* to find $P(X \ge 5)$. Also, find the variance of the distribution. [6]

2. Let the *cdf* of the random variable X is $F(x) = \begin{cases} 0; & x < -2 \\ \frac{x+2}{6}; & -2 \le x \le 4 \\ 1; & x > 4 \end{cases}$. Identify the distribution and find the corresponding *pdf*. Find the graph of *cdf* of X, and $P(1 < X < 5)$. [4]

Math-2205 Class Test 04 Section K

1. Identify the value of c for which $f(x) = \frac{3x^2}{8}; 0 \leq x \leq c$ could be a *pdf* of a random variable X. Find the *cdf* and hence the median of the distribution of X. Also, find the standard deviation of the distribution. [6]

2. Let the random variable X have the *pdf* $f(x) = e^{1-x}; x \geq 1$. Estimate $P(3 < X < 5)$ and the *mgf* of X. [4]