MN3AGJ

Time: 1 $\frac{1}{2}$ Hrs   **MARKS:40**

NOTE:

    1)   **Attempt all questions**
    2)   **All questions carry equal marks**
    3)   **Figure to the right indicate marks assigned.**

Q1)   **Attempt any two**

    A.   For a continuous random variable x is pdf is given by   **(5)**

$$f(x) = kx^2 \qquad\qquad 0 \le x \le 2$$
$$ = kx \qquad\qquad 2 < x < 3$$
$$ = 0 \qquad\qquad\quad o.w$$

    Find k and Mean and Variance.

    B.   Find pdf f(x) in the following case given the cumulative distribution   **(5)**
    function

$$F(x) = 0 \qquad\qquad\qquad\qquad x \le 0$$
$$ = x^2/4 \qquad\qquad\qquad 0 \le x \le 1$$
$$ = 2x - 1/4 \qquad\qquad 1 \le x \le 2$$
$$ = -x^2/4 + 3x/2 - 5/4 \qquad 2 \le x \le 3$$
$$ = 1 \qquad\qquad\qquad\qquad x > 3$$

    C.   Find pdf f(x) in the following case given cumulative distribution function   **(5)**

$$F(x) = 0 \qquad\quad x < 0$$
$$ = x/3 \qquad\quad 0 < x < 1$$
$$ = 1/3 \qquad\quad 1 < x < 3$$
$$ = x/6 \qquad\quad 2 < x < 6$$
$$ = 1 \qquad\quad x \ge 6$$

Q2.   **Attempt any two**

    A.   The distribution of number of words written per day by a certain writer   **(5)**
    over a period of one year showed rectangular distribution over
    (1000,2000)find the chance that on a randomly chosen day of the year he
    wrote
        (i)   At least 1200 words
        (ii)   Any where from 1250 to 1750 words