

The continuous random variable X has probability density function f given by

$$f(x) = \begin{cases} \frac{1}{5}x & 0 \leq x < 2, \\ \frac{2}{15}(5-x) & 2 \leq x \leq 5, \\ 0 & \text{otherwise.} \end{cases}$$

- (a) Find the cumulative distribution function of X . [3]
- (b) Find the median value of X . [2]
- (c) Find $E(X^2)$. [2]
- (d) Find $P(1 \leq X \leq 3)$. [2]