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7. A continuous random variable X has probability density function

$$f(x) = \begin{cases} \frac{3}{4}(x-1) & 1 \leqslant x < 2 \\ \frac{3}{32}x(x-4)^2 & 2 \leqslant x \leqslant 4 \\ 0 & \text{otherwise} \end{cases}$$

(a) Find the cumulative distribution function for all values of x.

(7)

(b) Verify that the median of X is 2.17 to 2 decimal places.

(2)

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Q7

(Total 9 marks)

TOTAL FOR PAPER: 75 MARKS

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