

**Discrete random variable and expectation – A2 Further Mathematics Statistics**

1. June/2022/Paper\_7367/03S/No.1

The random variable  $T$  follows a discrete uniform distribution and can take values

1, 2, 3, ..., 16

Find the variance of  $T$

Circle your answer.

[1 mark]

1.25

18.75

21.25

21.33

2. June/2022/Paper\_7367/03S/No.6

The discrete random variable  $X$  has probability distribution function

$$P(X = x) = \begin{cases} a & x = 0 \\ b & x = 1 \\ c & x = 2 \\ 0 & \text{otherwise} \end{cases}$$

where  $a$ ,  $b$  and  $c$  are constants.

The mean of  $X$  is 1.2 and the variance of  $X$  is 0.56

(a) Deduce the values of  $a$ ,  $b$  and  $c$

[6 marks]

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(b) The continuous random variable  $Y$  is independent of  $X$  and has variance 15

Find  $\text{Var}(X - 2Y - 11)$

[2 marks]

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