

Question	Scheme	Marks	AOs
5(a)	$P(L_x > 160) = P\left(Z > \frac{160-150}{25}\right)$		
	$= P(Z > 0.4)$		
	$= 1 - 0.6554$		
	$= \text{awrt } 0.345 \quad 0.34457\dots$	B1	1.1b
	Expected number = $12 \times "0.345"$	M1	1.1b
	$= 4.13$ (allow 4.14)	A1	1.1b
		(3)	
(b)	$P(L_y < 180) = 0.841621\dots$	B1	3.4
	$\frac{180-160}{\sigma} = 0.8416$	M1	1.1b
	$\sigma = \text{awrt } 23.8$	A1	1.1b
		(3)	
(c)	The standard deviations for two companies are close but the mean for company Y is higher	M1	2.4
	therefore choose company Y	A1	2.2b
		(2)	
(8 marks)			
Notes:			
(a) B1: awrt 0.345 M1: for multiplying their probability by 12 A1: 4.13 (allow 4.14)			
(b) B1: for use of the correct model to find the correct value of z awrt 0.842 M1: for standardising = to a Z value $0.5 < Z < 1$ A1: awrt 23.8			
(c) M1: for a correct reason following their part(b) A1: for making an inference that follows their part(b)			