

Question	Scheme	Marks	AOs
2(a) (i) (ii)	(Use of $X \sim N(30, 2^2)$)		
	$P(X = 31) = 0$	B1	1.2
	From calculator, $P(X > 31) = 0.3085 \dots$ awrt 0.309	B1	1.1b
		(2)	
(b) (i) (ii)	$0.0668 \times (1 - 0.0668)^4$	M1	3.1b
	$= 0.050665 \dots$ awrt 0.0507	A1	1.1b
		(2)	
	$Y \sim B(5, 0.0668)$	M1	3.3
	$P(Y > 1) = 1 - P(Y \leq 1)$	M1	3.4
	$= 1 - 0.9610 \dots = 0.0390$ awrt 0.039	A1	1.1b
		(3)	
(c)	$H \sim N(\mu, 1.5^2)$		
	$P(H > 42) = 0.0005$ or $P(H < 42) = 0.9995$	M1	1.1b
	$z = 3.2905268 \dots$ awrt 3.29	B1	1.1b
	$z = \frac{42 - \mu}{1.5} = 3.29 \dots$	M1	2.1
	$\mu = 37.0642 \dots$ awrt 37.1 °C	A1	1.1b
		(4)	
(11 marks)			

Notes:
(a)(i) B1 for 0 no working or justification required (ii) awrt 0.309
(b)(i) M1 $p(1-p)^4$ A1 awrt 0.0507
(ii) 1 st M1 Binomial B(5, 0.0668) 2 nd M1 use of correct Binomial to find $P(Y > 1)$ A1 awrt 0.039
(c) B1 awrt 3.29 2 nd M1 correct standardised expression with $z > 2$ A1 awrt 37.1