Daily Question Applied Maths Day 2 Mark Scheme

Question Number	Scheme	Marks
(a)	Any two from: • **Probability** that a **pot** will **crack** is constant (0.3) • **Pots crack** independently/randomly • **Batch size** / number of **pots fired** (n) is constant	B1B1 (2)
(b)	[$8 \times 0.3 =$] 2.4	B1 (1)
(c)	Let X = number of pots which crack $X \sim B(8, 0.3)$ $P(X = 2) = {}^8C_2 \times 0.3^2 \times 0.7^6$ $= 0.29647\ldots$ awrt 0.296/0.297	M1 A1 (2)
(d)	$P(X \leqslant 5) = 0.9887$ [$k =$] 6	M1 A1 (2)
(e)	$H_0: p = 0.3$ $H_1: p < 0.3$ Under H_0, $Y \sim B(20, 0.3)$ $P(Y \leqslant 2) = 0.0355$ $P(Y \leqslant 3) = 0.1071$ C.R. is $Y \leqslant 2$	B1 M1 A1cao (3)
(f)	3.55% or 0.0355	B1 (1)
		Total 11