

Question	Scheme	Marks	AOs
4 (a)	$\frac{132}{184} = 0.71739...$ awrt <u>0.717</u>	B1	1.1b
		(1)	
(b)(i)	$P(X \geq 6) = 1 - P(X \leq 5)$ or $P([X =]6) + P([X =]7) + P([X =]8)$	M1	3.4
	$= 1 - 0.296722...$ awrt <u>0.703</u>	A1	1.1b
(b)(ii)	$184 \times P(X = 7)$ [= $184 \times 0.2811...$]	M1	1.1b
	$= 51.7385...$ awrt <u>51.7</u>	A1	1.1b
(c)		(2)	
	Part (a) and part (b)(i) are similar and the expected number of 7s (51.7 or 0.281) matches with the number of 7s found in the data set (52 or 0.283) so Magali’s model is supported.	B1ft	3.5a
(d)		(1)	
	$\frac{23}{28} = 0.82142...$ awrt <u>0.821</u>	B1	1.1b
(e)		(1)	
	Any one of... - Part (d)/‘0.821’ differs from part (a)/(b)(i)/(0.7...) - there is a greater/different probability of high cloud cover/more likely to have high cloud cover if the previous day had high cloud cover independence(o.e.) does not hold	B1	2.4
(e)	...therefore Magali’s (binomial) model may not be suitable.	dB1	3.5a
		(2)	
(9 marks)			
Notes			
	Allow fractions, decimals or percentages throughout this question.		
(a)	Allow equivalent fraction, e.g. $\frac{33}{46}$		
(b)(i)	M1: for writing or using $1 - P(X \leq 5)$ or $P(X = 6) + P(X = 7) + P(X = 8)$ A1: awrt 0.703 (correct answer scores 2 out of 2)		
(b)(ii)	M1: for $184 \times P(X = 7)$ o.e. e.g., $184 \times [P(X \leq 7) - P(X \leq 6)]$ A1: awrt 51.7		
(c)	B1ft: comparing ‘0.717’ with ‘0.703’ <u>and</u> ‘51.7 or ‘0.281’ with 52 or 0.283 and concluding that Magali’s model is supported (must be comparing prob. with prob. <u>and</u> days with days). Allow not supported or mixed conclusions if consistent with their f.t. answers in (a) and (b)		
(e)	B1: Any bullet point dB1: (dep on previous B1) for Magali’s model may not be suitable (o.e.) Condone not accurate for not suitable SC: part (d) is similar to part (a)/(b)(i) and a compatible conclusion (i.e. Magali’s model is supported) to score B1B1.		