

Question		Scheme	Marks	AOs
1(a)		$X \sim B(10, 0.8)$	B1	3.3
			(1)	
(b)(i) (ii)		$P(X = 8) = 0.30198\dots$ awrt 0.302	B1	1.1b
		$P(X \geq 7) = 1 - P(X \leq 6) = 1 - 0.12087$	M1	3.4
		$= 0.87913\dots$ awrt 0.879	A1	1.1b
			(3)	
(c)		The binomial distribution requires the events to be independent, however, if whales are seen in an area on one day, there may be a higher likelihood that they will be there on the next day o.e.	B1	3.5b
			(1)	
(Total 5 marks)				
Notes:				
(a)	B1	For sight of the correct model $B(10, 0.8)$		
(b)(i)	B1	awrt 0.302		
(ii)	M1	Sight of correct process to find $P(X \geq 7)$, can be implied by statement or correct numbers, allow $1 - 0.121$ or better.		
	A1	awrt 0.879		
(c)	B1	Allow statements that imply that the event of seeing the whales on consecutive days is not independent, or that the probability may not be constant.		