

Question			Answer	Mark	AO	Guidance
11	(a)		Need to find $P(X \geq 50)$	B1 [1]	1.2	OR $1 - P(X \leq 49)$ Condone just $X \geq 50$ Ignore all else (but do not accept just ‘cumulative’)
11	(b)		$X \sim B(60, 0.75)$ and $X \geq 50$ $P(X \geq 50) = 0.0859$ $0.0859 > 0.05$ Do not reject H_0 Insufficient evidence (at 5% level) that more than 75% have BR as favourite band	M1 A1 A1ft M1 A1 [5]	3.3 3.4 1.1 1.1 2.2b	Allow $X > 50$, $X \leq 50$, $X < 50$, $X = 50$ May be implied by $P(X \geq 50) = 0.0859$ (or $P(X > 50) = 0.0452$) BC (accept awrt 0.086 (2sf)) ft correct comparison of their value with 0.05 (OR 0.95 as appropriate – but must see the value being compared) Must be correct based on their value comparison Condone ‘Accept H_0 ’ or ‘Reject H_1 ’ In context, not definite Condone ‘no evidence’, ‘not likely that’ etc. From correct working only

11	(c)	(i)	B(60, 0.75)	B1 [1]	3.3	OR Binomial, $n=60$, $p=0.75$ (must have all three)
11	(c)	(ii)	Yes. Whether a student's favourite is BR is not independent of other students.	B1 [1]	3.5b	Must be in context or As students are chosen in turn, the probability changes Allow any of: • P(a chosen student's favourite is BR) is affected by previously chosen students • P(a student's favourite is BR) changes Do not accept: • "Risk of picking the same student again"