Question Number	Scheme	Marks
2 (a)	$\frac{60\times 60}{240}$ or $\frac{60\times 84}{240}$ or $\frac{60\times 96}{240}$	M1
	15 and 21 and 24	A2
		(3)
(b)	H_0 : There is no association between the payment amount and payment method used H_1 : There is an association between the payment amount and payment method used	B1
	Observed / Expected / $\frac{(O-E)^2}{E}$ 23 / 15 / $\frac{(23-'15')}{'15'}=4.2667$ 21 / 21 / $\frac{(21-'21')}{'21'}=0$ 16 / 24 / $\frac{(16-'24')}{'24'}=2.6667$	M1
	$\chi^2 = 2.4048 + '4.2667' + '0' + '2.6667'$	M1
	$= 9.3381\ldots$ awrt 9.34	A1
	$\nu = (3-1)(3-1) = 4$ $\quad \chi^2_4(0.05) = 9.488 \Rightarrow$ CR: $X^2 \geqslant 9.488$	B1 B1ft
	[Not in the CR/Not significant/Do not reject H_0] There is no evidence of an association between **the payment amount and payment method used**	dA1
		(7)

	Notes	**Total 10**
(a)	**M1**	For a correct method for finding one expected value
	A2	For all 3 answers correct (A1 for 2 correct answers or 1 correct and 3 values that sum to 60)
(b)	**B1**	Both hypotheses correct. Must mention method **and** amount with payment at least once. (may be written in terms of independence)
	M1	For a correct method for finding all three contributions to the χ^2 value ft their part a May be implied by 3 correct values If expected values are incorrect then working must be shown
	M1	For adding their values to 2.4048 (If all 9 values are calculated the 6 values not found in part (a) must have working shown or the correct values seen or awrt 9.34)
	A1	awrt 9.34
	B1	$\nu = 4$ This mark can be implied by a correct critical value of 9.488
	B1ft	9.488 or better ft their DoF
	dA1	Dependent on both M marks. A correct contextualised conclusion which is not rejecting H_0 Must mention **method** and **amount**. If no hypotheses or they are the wrong way round, then A0 here. Contradictory statements score A0. e.g. "Significant, do not reject H_0 ".Condone "relationship" or "connection" here but **not** "correlation".