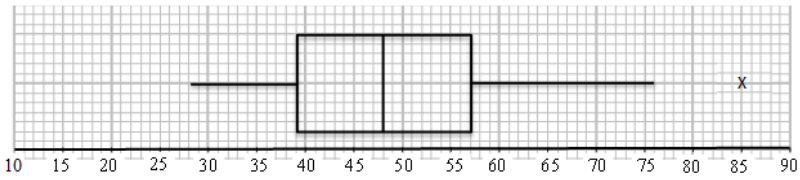
Question	Scheme	Marks
1 (a)	$k = 3$	B1
		(1)
(b)	$Q_1 = 39 \quad Q_3 = 57$	B1 B1
		(2)
(c)	$"57"+1.5\times("57"-"39")$ or $"39"-1.5\times("57"-"39")$	M1
	84 **and** 12 therefore only 1 outlier [85]	A1
		(2)
(d)		M1 M1 M1 A1
		(4)
(e)	A correct difference of the **medians** with supporting figures e.g. On average Birch [trees grow slightly] **taller** as the **median** is larger **48 > 45** oe **or** A correct difference of the **spread** with supporting figures e.g. Maple has a greater spread/variation of **heights** as the **range** is larger **55 > 48** (excluding outlier) oe e.g. Birch has a greater spread/variation of **heights** as the **range** is larger **57 > 55** (with outlier) oe	B1ft
		(1)
(f)	36 „ $a < x$ where 43 „ x „ 45 **or** 54 „ $2a$ „ 80	M1
	36 „ a „ "43" and 54 „ $2a$ „ 80	A1ft
	36 „ a „ 40	A1
		(3)

	Notes		Total 13
(a)	**B1**	Cao	
(b)	**B1**	for Q_1 correct	
	B1	for Q_3 correct	
(c)	**M1**	for either method correct or a correct value (ft their Q_1 and their Q_3)	
	A1	Both limits for outliers correct and statement about the outlier or the outlier given.	
(d)	**M1**	for a box drawn with only 2 whiskers, only one at each end (condone median line missing)	
	M1	for upper whisker ending at 76 (or 84 ft their upper outlier limit) and lower whisker ending at 28	
	M1	for Q_1, Q_2 and Q_3 plotted, with $Q_2 = 48$ and ft their Q_1 and Q_3	
	A1	for a fully correct box plot with the outlier correctly shown – must be only 1	
(e)	**B1ft**	for a correct comment, **referring to heights**, with reference to a **correctly named statistic.** Must **include the figures** compared. Allow 'grow more/bigger' to imply taller Ignore any reference to skew **SC If Q1/Q3 are incorrect then allow a ft comment about spread referring to the difference in IQR if compared to 18**	
(f)	**M1**	for either range correct. Allow $72 \leqslant 2a \leqslant 80$ or $27 \leqslant a \leqslant 40$ for 54 „ $2a$ „ 80 Condone < rather than „ May be seen as separate inequalities e.g. $2a \leqslant 80$, $2a \geqslant 54$ is allowed for 54 „ $2a$ „ 80 A final answer of 36 „ a „ 40 or $36 < a < 40$ implies M1	
	A1ft	for both ranges correct ft their k. Allow $72 \leqslant 2a \leqslant 80$ or $27 \leqslant a \leqslant 40$ for 54 „ $2a$ „ 80 Condone < rather than „ May be seen as separate inequalities	
	A1	Allow 36 to 40 or 36, 37, 38, 39, 40 **NB** It is possible to get M1A0A1	