1	e.g. $5 \times 4 + 15 \times 10 + 25 \times 15 + 35 \times 25 + 45 \times 6$ (= 1690) **or** 20 + 150 + 375 + 875 + 270 (= 1690)		4	M2	For correct products using midpoints (allowing one error) with intention to add. If not M2 then award M1 for products using frequency and a consistent value within the range (allowing one error) with intention to add or correct products using midpoint without addition.
	"1690" ÷ 60			M1	dep on M1
		28.2		A1	accept 28.1 – 28.2
					Total 4 marks

2	a			2	M1	for at least 2 correct tallies or frequencies
			2, 5, 4, 3, 2		A1	mark frequencies only – in either column
	b		1	1	B1	allow ft from (a)
	c		4	1	B1	
						Total 4 marks

3	a		$50 < L \leq 60$	1	B1	oe eg 50 - 60
	b	$25 \times 6 + 35 \times 26 + 45 \times 31 + 55 \times 40 + 65 \times 17$ (150 + 910 + 1395 + 2200 + 1105)(= 5760)			M2	For correct products using midpoints (allow one error) with intention to add. M1 for products using frequency and a consistent value within the range (allow one error) with intention to add or correct products using midpoints (allow one error) without addition
		"5760" ÷ "120"			M1	dep on M1
			48	4	A1	
						Total 5 marks

4	(a)		Frequencies and tallies of 2, 3, 8, 4, 5, 2	2	B2	All frequencies and tallies correct B1 for 3, 4 or 5 frequencies or tallies correct NB. Frequencies and tallies must be in the correct column. Accept 2/24 etc. in frequency column
	(b)		3	1	B1ft	Follow through from table
	(c)		Sensible statement	1	B1	Not enough 1's or 6's Too many 3's Rolled a 3 a third of the times Should expect to get 4 of each number
						Total 4 marks

5	$10 \times 5 + 30 \times 11 + 50 \times 8 + 70 \times 19 + 90 \times 9$ (50 + 330 + 400 + 1330 + 810)		3	M2	Correct products using midpoints (allowing one error) with intention to add. M1 for products using frequency and a consistent value within the range (allowing one error) with intention to add. or correct products using midpoint without intention to add.
		2920		A1	N.B. 2920 ÷ 52(=56.15...) gains M2 only
					Total 3 marks

6	(a)		$3 < w \leq 4$	1	B1
	(b)	$(12 \times 2.5) + (16 \times 3.5) + (9 \times 4.5) + (2 \times 5.5) + (1 \times 6.5)$ **or** $30 + 56 + 40.5 + 11 + 6.5 (= 144)$		4	M2 for at least **4** correct products added (need not be evaluated) **or** If not M2 then award M1 for consistent use of value within interval (including end points) for at least **4** products which must be added **or** correct midpoints used for at least **4** products and not added
		$[(12 \times 2.5) + (16 \times 3.5) + (9 \times 4.5) + (2 \times 5.5) + (1 \times 6.5)] \div 40$ **or** '144' ÷ 40			M1 dep on at least M1 Allow division by their Σf provided addition or total under column seen
			3.6		A1 oe
	(c)	$\frac{2}{40} + \frac{1}{40}$		2	M1 for $\frac{a}{40}$ where $0 < a < 40$ or $\frac{3}{b}$ where $b > 3$ where a and b are integers
			$\frac{3}{40}$		A1 0.075 oe
					Total 7 marks

7	(a)(i)		$\frac{10}{25}$	1	B1	for 0.4 oe
	(ii)		$\frac{8}{25}$	1	B1	for 0.32 oe (penalise incorrect notation once only in (a))
	(b)		2	1	B1	for 2
	(c)	$(1\times14) + (2\times17) + (3\times15) + (4\times12) + (5\times9)$ $(= 14 + 34 + 45 + 48 + 45)$		2	M1	For correct products seen – condone one incorrect product or one missing product
			186		A1	for 186
						Total 5 marks

8	(a)		$70 < s \leq 80$	1	B1	
	(b)	$10 \times 45 + 16 \times 55 + 19 \times 65 + 23 \times 75 + 12 \times 85$ **or** $450 + 880 + 1235 + 1725 + 1020 (= 5310)$		4	M2	$f \times d$ for at least 4 products with correct mid-interval values and intention to add. If not M2 then award M1 for d used consistently for at least 4 products within interval (including end points) and intention to add **or** for at least 4 correct products with correct mid-interval values with no intention to add
		"5310" ÷ 80			M1	dep on at least M1 allow division by their $\sum f$ provided addition or total under column seen
			66.4		A1	accept 66.37 – 66.4
						Total 5 marks

9	(a)		$48 < S \leqslant 54$	1	B1	Allow 48 – 54 oe
	(b)	$(33 \times 4) + (39 \times 14) + (45 \times 18) + (51 \times 19) + (57 \times 5)$ or $132 + 546 + 810 + 969 + 285$ (= 2742) [lower bound products are: 120, 504, 756, 912, 270] [upper bound products are: 144, 588, 864, 1026, 300]		4	M2	M2 for at least **4** correct products added (need not be evaluated) **or** If not M2 then award: M1 for consistent use of value within interval (including end points) for at least **4** products which must be added or correct midpoints used for at least **4** products and not added
		$\frac{"2742"}{60}$			M1	dep on M1 Allow division by their Σf provided addition or total under column seen
		Correct answer scores full marks (unless from obvious incorrect working)	45.7		A1oe	$45\frac{7}{10}$ or $\frac{457}{10}$ (accept 46 from correct working)
						Total 5 marks

10	(a)		11	1	B1	
	(b)	21 ÷ 2 (=10.5) or 11th oe or 10,11,11,11,,,,12,12,13… etc with no more than one error		2	M1	For a correct method to find position of median
			13		A1	
	(c)	$10\times1+11\times7+12\times2+13\times5+14\times4+15\times2$ or $10 + 77 + 24 + 65 + 56 + 30$ oe		2	M1	For at least 4 correct products
		Correct answer scores full marks (unless from obvious incorrect working)	262		A1	(NB: an answer of 12.476.. alone or with 262 ÷ 21 gains M1 only)
						Total 5 marks

11	(a)			2	M1	for at least 2 correct tallies or frequencies
		Correct answer scores full marks (unless from obvious incorrect working)	Frequencies of 5, 2, 4, 3, 6		A1	mark frequencies only – in either column If no other marks awarded, award SCB1 for answers of $7\times\left(\frac{14.5-9y}{2}\right)+3y=8$
	(b)		Correct bar chart (ft (a))	3	B3	B1 for labelling the bars (can be abbreviations) B2ft for 5 column heights correct (B1ft for 3 or 4 column heights correct)
						Total 5 marks

12	$15 \times 5 + 45 \times 6 + 75 \times 8 + 105 \times 9 + 135 \times 2$ **or** $75 + 270 + 600 + 945 + 270$ [lower bound products are: 0, 180, 480, 810, 240] [upper bound products are: 150, 360, 720, 1080, 300]		3	M2	for correct products using midpoints (allow one error or omission) with attempt to add (M1 for products using a consistent value within range and attempt to add **or** for at least 4 correct products without addition)
	Correct answer scores full marks (unless from obvious incorrect working)	2160		A1	(an answer of 72 loses the final A mark but gains M2)
					Total 3 marks