Question	Answer	Marks	AO Element	Notes	Guidance
1(a)	93.4	**4**		**M1** for mid-values soi **M1** for Σfx **M1 dep on second M** for $\Sigma fx \div 200$	
1(b)	19	**2**		**M1** for $\frac{86}{50}$ or $\frac{114}{60}$	
2(a)	121 or 120.8… or $128\frac{5}{6}$	**4**		**M1** for midpoints soi **M1** for use of Σfx with x in correct interval including both boundaries but **not** if x is 50, 50, 100 and 300 **M1** (dep on 2nd M1) for $\Sigma fx \div 120$	
2(b)	12.4 5 1.4	**3**		**B1** for each If 0 scored **SC1** for fd's [0.86,] 0.62, 0.25 and 0.07 oe	
2(c)	43 74 99 120	**2**		**B1** for 2 or 3 correct	

Question	Answer	Marks	AO Element	Notes	Guidance
2(d)	Correct diagram	**3**		**B1** for correct horizontal placement for 4 plots **B1FT** for correct vertical placement for 4 plots **B1FT dep on at least B1** for reasonable increasing curve or polygon through their 4 points If 0 scored **SC1 FT** for 3 out of 4 points correctly plotted	
2(e)(i)	Strict FT *their* **median** reading	**1**			
2(e)(ii)	Strict FT *their* **UQ** reading	**1**			
2(e)(iii)	Strict FT *their* reading at **40th percentile**	**2**		**B1** for 48 written or mark at cf = 48 on graph	
2(e)(iv)	Strict FT *their* reading at 400 – *their* reading at 250	**2**		**B1** for either correct reading at 250 or 400	
3(a)(i)	$1.5 < h \leqslant 1.6$	**1**			
3(a)(ii)	1.62 or 1.623… nfww	**4**		**M1** for 1.35, 1.45, 1.55, 1.65, 1.75 1.85 soi **M1** for Σfx **M1 dep** for *their* $\Sigma fx \div 120$	

Question	Answer	Marks	AO Element	Notes	Guidance
3(b)(i)	$\frac{14}{120}$ oe	**1**			
3(b)(ii)	$\frac{21}{20060}$ oe	**4**		**M3** for $3\left(\frac{14}{120}\times\frac{7}{119}\times\frac{6}{118}\right)$ or **M2** for $\frac{14}{120}\times\frac{7}{119}\times\frac{6}{118}$ isw or **M1** for $\frac{14}{120}$, $\frac{7}{119}$, $\frac{6}{118}$ After 0 scored, **SC1** for answer $\frac{343}{864000}$ or $\frac{343}{288000}$ oe	
3(c)(i)	55, 79, 106, 120	**2**		**B1** for 2 or 3 correct	

Question	Answer	Marks	AO Element	Notes	Guidance
3(c)(ii)	Correct diagram	**3**		**B1** for correct horizontal plots **B1FT** for correct vertical plots **B1FT dep on at least B1** for reasonable increasing curve or polygon through *their* 6 points If 0 scored **SC1** for 5 out of 6 points correctly plotted	
3(d)(i)	1.62 to 1.63	**1**			
3(d)(ii)	1.57 to 1.58	**2**		**B1** for 48 soi	
4(a)(i)	42.8 or 42.79 … nfww	**4**		**M1** for mid-values soi **M1** for Σfm where m is any value in interval including boundaries **M1** (dep on second **M1**) for *their* $\Sigma fm \div 120$	
4(a)(ii)	Blocks of height 1.8 4.4 8 2.1 with correct widths	**4**		**B1** for each correct block If **B0**, **SC1** for correct frequency densities seen	

Question	Answer	Marks	AO Element	Notes	Guidance
4(b)	Valid general comment about distributions	**1**		e.g. [On average], shoppers spend less time shopping on Wednesday oe	
5(a)	60.9 or 60.91... nfww	**4**		**M1** for 49, 57, 71 correct **M1** for use of Σfx with x in the correct interval including both boundaries **M1** (dep on 2nd **M1**) for *their* $(78 \times 49 + 180 \times 57 + 162 \times 71) \div (78 + 180 + 162)$	
5(b)	Correct histogram	**4**		**B1** for correct widths in correct position **B1** height 13 **B1** height 18 **B1** height 9 If 0 scored **B1** for 13, 18 and 9 seen	
6(a)(i)	$\frac{9}{160}$ oe	**1**			

Question	Answer	Marks	AO Element	Notes	Guidance
6(a)(ii)	58.125 nfww	**4**		**M1** for mid-points soi **M1** for use of Σfx with x in correct interval including both boundaries **M1** (**dep on 2nd M1**) for $\Sigma fx \div 160$	
6(b)	[3 42] 85 140 151 160	**2**		**B1** for 1 error **FT** other values	
6(c)	correct curve	**3**		**B1FT** *their* **(b)** for 6 correct heights **B1** for 6 points at upper ends of intervals on correct vertical line **B1FT dep on at least B1** for increasing curve through their 6 points After 0 scored, **SC1** for *their* 5 correct points plotted	
6(d)(i)	57 to 59	**1**			
6(d)(ii)	36 to 42	**2**		**B1** for UQ = 76 to 80 or LQ = 38 to 40 soi	
6(d)(iii)	92 to 94	**2**		**B1** for 144 seen	

Question	Answer	Marks	AO Element	Notes	Guidance
6(d)(iv)	130 to 137	**2**		**B1** for 23 to 30 seen	
7	140, 60	**2**		**M1** for $\frac{200}{(7+3)} \times k$ where $k = 1$, 7 or 3	
8	$\frac{30}{2} \times (5 + 3 + 2)$	**2**		**M1** for $\frac{30}{2}$ or $\frac{5+3+2}{2}$	
9	84	**3**		**M2** for $\frac{180}{3+5+7} \times j$ or better where $j = 1$, 3, 5 or 7 or **B1** for 180 or $\frac{7}{15}k$	
10	*A* With correct comparisons made of the 3 bottles with suitable accuracy shown	**3**		**M2** for 3 correct comparable values, or for a correct method to compare 3 bottles shown but not evaluated to enough accuracy or **M1** for 2 correct comparable values or for a correct method to compare 3 bottles but not evaluated	
11	2400 ÷ 8 × (8 + 5 + 6) [= 5700]	**2**		**M1** for 2400 ÷ 8	

Question	Answer	Marks	AO Element	Notes	Guidance
12	5 : 4 : 2	**2**		**B1** for any correct partial simplification of the ratio	
13	42	**2**		**M1** for 12 ÷ 2 or better	
14	\$142.1[0] cao	**4**		**M2** for [adults =] 56 ÷ 8 × 5 and [child =] 56 ÷ 8 × 3 or better or **M1** for 56 ÷ (5 + 3) × k where k = 1, 3 or 5 **M1** for *their* 35 × 2.80 + *their* 21 × 2.80 × $\frac{3}{4}$ oe	
15(a)	245	**1**			
15(b)	8	**2**		**M1** for 40 + 26.5x = 252 oe or **B1** for 212 seen	
15(c)	6	**2**		**M1** for (224 – 2 × 48) ÷ 32 oe or 2 × 48 + 32(x – 2) = 224 soi	
15(d)	35 : 36 : 32 final answer	**2**		**B1** for *their* (a) : 252 : 224 or equivalent ratio	

Question	Answer	Marks	AO Element	Notes	Guidance
16	6525	**4**		**M3** for $\left(\frac{65}{45} - \frac{63}{45}\right)[A] = 290$ oe or **M2** for $\left(\frac{13}{9} - \frac{7}{5}\right)[A] = 290$ oe or **M1** for correct attempt to convert to a common ratio value for Arjun or for $\frac{13}{9} - \frac{7}{5}$ oe	
17(a)	15 : 12 : 28	**2**		**M1** for correct attempt to find a common multiple for the women oe	
17(b)	216	**3**		**M2** for 224 ÷ *their* 28 × *their* (15 + 12) or **M1** for 224 ÷ *their* 28	
					[Total: 112]