Mark scheme

Cumulative frequency

Mathematics 0580 · Questions from Paper 2 and Paper 4

Total marks

82

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
4	4	5	5	6	7	8	11	14	18	**82**

Question 1 [4]

1(a)	1.4	**2**	**B1** for [UQ =] 5.6 or for [LQ =] 4.2 or **SC1** for 0.7
1(b)	5.4	**2**	**B1** for 84 seen

Question 2 [4]

2(a)	A correct cumulative frequency curve through [(20, 0)], (30, 6) (40, 42), (50, 76), (60, 170), (70, 190) and (80, 200)	**3**	**B1** for correct horizontal placement for 6 plots **B1** for correct vertical placement for 6 plots **B1FT** dep on at least B1 for reasonable increasing curve or polygon through *their* 6 points If 0 scored, **SC1FT** for 5 out of 6 points correctly plotted
2(b)	Reading at 150 FT *their* increasing curve	**1**	

Question 3 [5]

3 (a)	56	**2**	**B1** for 16 soi or **M1** for 72 – *their* 16
(b) (i)	63 or 63 to 63.5	**1**	
(ii)	22 or 21.6 to 23 nfww	**2**	**B1** for 49.8 to 50.2 seen or 71.8 to 72.8

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Question 4 **[5]**

4(a)(i)	5	**1**	
4(a)(ii)	2.4 to 2.6	**2**	**B1** for [LQ=] 3.4 to 3.6 or [UQ=] 6
4(b)	26, 74	**2**	**B1** for each

Question 5 **[6]**

5	**(a)**	44	**2**	**M1** for 48 soi
	(b)	24	**2**	**M1** for 40 or 16 or both lines drawn from 15 **and** 45 across and down to the horizontal axis
	(c)	5	**2**	**M1** for answer 55 or line or mark on graph indicating 55

Question 6 **[7]**

6(a)	80 to 84	**2**	**M1** for 116 to 120
6(b)	Correct curve or ruled lines	**3**	**B2** for 7 or 8 correct points **B1** for 5 or 6 correct points
6(c)	26	**2**	**B1** for 156 or 130 or for *their* 130 from *their* **increasing** curve (or lines)

Question 7 **[8]**

7	**(a)**	**(i)**	3.2	**1**	
		(ii)	4.2	**1**	
		(iii)	4.6	**1**	
		(iv)	196	**1**	
	(b)	**(i)**	100, 46, 12	**2**	**B1** for 2 correct
		(ii)	4	**2**	**M1** for frequency of 60 or 140 seen in workspace

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Question 8 [11]

8	**(a)** **(i)** 63 to 63.5 **(ii)** 50 to 50.5 **(iii)** 21.5 to 22.5	1 1 1	
	(b) 46	2	**B1** for 34 seen (could be on graph)
	(c) **(i)** 12, 14 **(ii)** {35 × 8 + 45 × their 12 + 55 × 14 + 65 × 22 + 75 × their 14 + 85 × 10} ÷ their 80 (or 80)	1, 1 M3	**M1** for mid-values soi (allow 1 error/omit) and **M1** for use of $\sum fx$ with x in correct boundary including both ends (at least 4 products) (4920 seen implies M2) and **M1** depend on 2nd M for dividing by their 80 (or 80) (not 54 or less)
	61.5 cao	A1	www4

Question 9 [14]

9(a)	12.8[0]	**4**	**M1** for midpoints **soi** **M1** for use of $\sum fm$ with m in correct interval including both boundaries **M1** (dep on 2nd **M1**) for $\sum fm \div 100$
9(b)	54 84 93	**2**	**B1** for 2 correct or 1 error and 2 correct or **FT**
9(c)	correct diagram with all points correctly plotted	**3**	**B1FT** *their* **(b)** for plots at 5 correct heights **B1** for 5 points at upper ends of intervals on correct vertical line **B1FT** (dep on at least **B1**) for increasing curve or polygon through 5 points After 0 scored, **SC1FT** for 4 correct points plotted
9(d)(i)	9 to 9.8 final answer	**1**	
9(d)(ii)	8.5 to 11.5	**2**	**B1** for [UQ =] 15.5 to 17.5 or [LQ =] 6 to 7 seen
9(d)(iii)	10, 11 or 12	**2**	**B1** for 88 to 90 seen or for answer between 10 and 12

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Question 10 **[18]**

10(a)	100.2 nfww	**4**	**M1** for midpoints soi 65, 80, 95, 105, 112.5, 120 **M1** for use of $\sum fx$ with x in correct interval including both boundaries **M1**dep for $\sum fx \div 180$ dep on previous **M1**
10(b)	0.8 2.8 0.65	**3**	**B1** for each If zero scored, **SC1** for 1.6, 5.6 and 1.3 seen
10(c)	8 34 69 136 164	**2**	**B1** for one error **FT** other values or for 3 or 4 correct
10(d)	Correct diagram	**3**	**B1FT** for correct vertical placement for 6 plots **B1** for correct horizontal placement for 6 plots **B1FT dep on at least B1** for reasonable increasing curve or polygon through *their* 6 points If zero scored, **SC1FT** for 5 out of 6 correct plots
10(e)(i)	15 to 17	**2**	**B1** for [LQ =] 93 to 94 or [UQ =] 109 to 110
10(e)(ii)	107 to 109	**2**	**B1** for 126 seen
10(e)(iii)	66 to 72	**2**	**FT** their graph for 2 marks **B1** for answer 106 to 114 or **B1FT** *their* graph reading at 106 cm seen

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