CHAPTER 6: STATISTICS

Paper 2

Solution to Question 17

(a)

Score	1	2	3	4	5
Frequency × Score	4	10	21	m	15
Frequency	4	5	7	$\dfrac{m}{4}$	3

$$\text{Total frequency } = 21$$

$$4 + 5 + 7 + \frac{m}{4} + 3 = 21$$

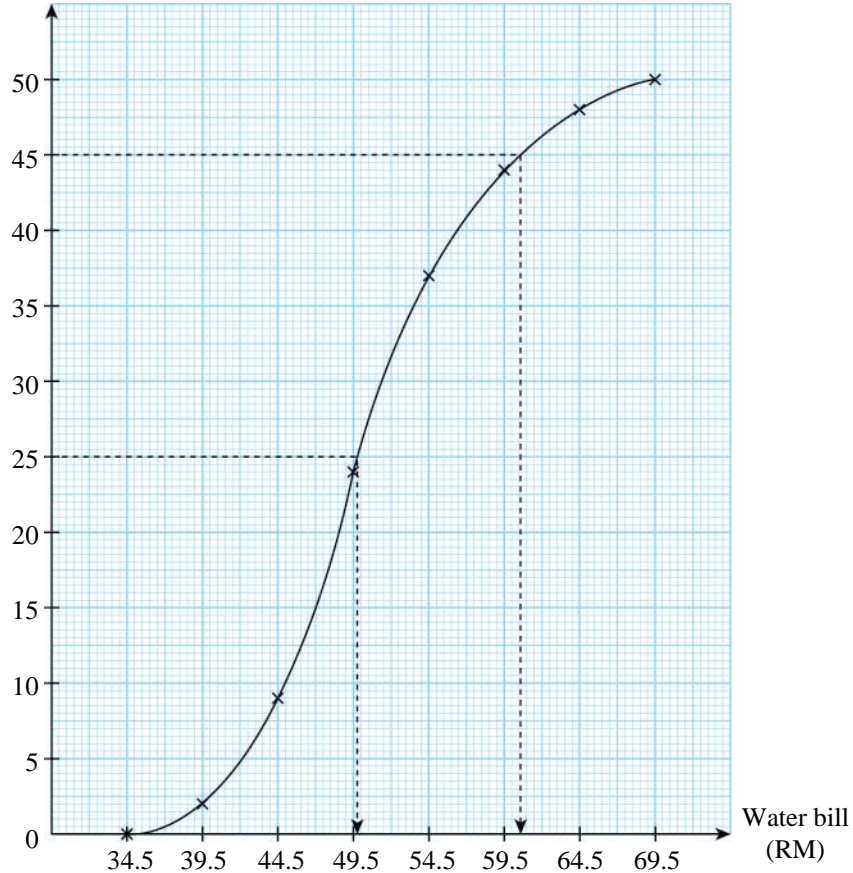$$\frac{m}{4} + 19 = 21$$

$$\frac{m}{4} = 21 - 19$$

$$= 2$$

$$m = 2(4)$$

$$= 8$$

(b) (i)

Water bill (RM)	Frequency	Upper boundary	Cumulative frequency
30 – 34	0	34.5	0
35 – 39	2	39.5	2
40 – 44	7	44.5	9
45 – 49	15	49.5	24
50 – 54	13	54.5	37
55 – 59	7	59.5	44
60 – 64	4	64.5	48
65 – 69	2	69.5	50

NEXUS SPM MATHEMATICS *FORM 4 & 5*

Page **123**   (Step-by-step Workings)

eRevision
Supplementary Materials for
NEXUS

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(ii)   Cumulative frequency

(iii)   The water bill of 50% of the families was less than RMx.
Thus, median = x
Based on the graph, $x = 49.75$
10% of the families spent at least RMy on their water bills. So, 90% of the families spent less than RMy on their water bills, that is
$\dfrac{90}{100} \times 50 = 45$ families.
Based on the graph, $y = 60.50$

Solution to Question 18

(a)   (i)   Given mode = 4 which means the frequency of 4 is the highest.
Therefore, $k < 10$, where k is an integer. Thus, maximum value of $k = 9$

(ii)   When $k = 1$, mean $= \dfrac{1 \times 6 + 2 \times 5 + 3 \times 1 + 4 \times 10 + 5 \times 3}{6 + 5 + 1 + 10 + 3} = \dfrac{74}{25} = 2.96$

(b)   (i)

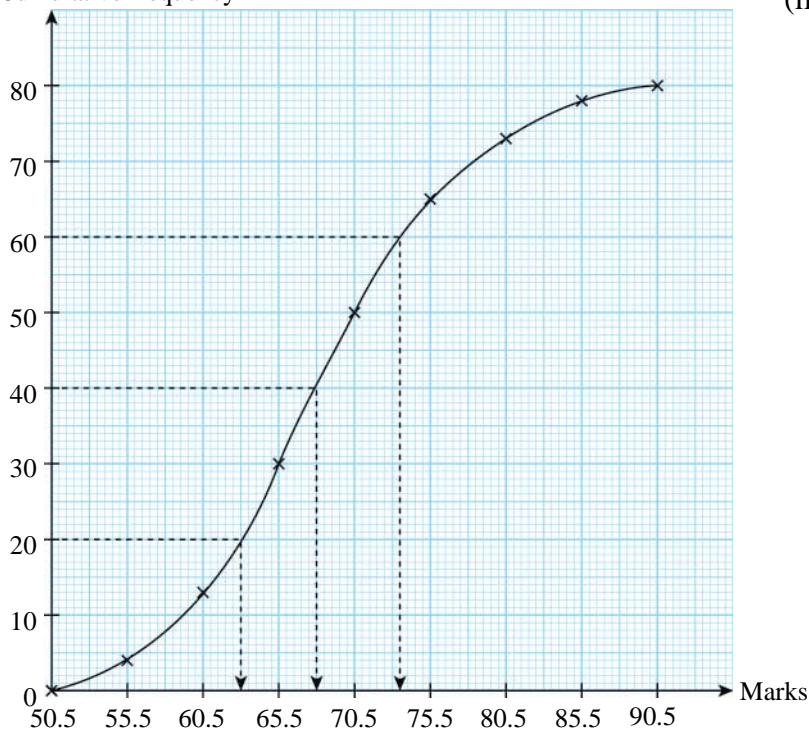| Marks	Frequency
51 – 55	4
56 – 60	9
61 – 65	17
66 – 70	20
71 – 75	15
76 – 80	8
81 – 85	5
86 – 90	2

Mean mark

$= \dfrac{53 \times 4 + 58 \times 9 + 63 \times 17 + 68 \times 20 + 73 \times 15 + 78 \times 8 + 83 \times 5 + 88 \times 2}{80}$

$= \dfrac{5\,475}{80}$

$= 68.44$

(ii)

(iii)   (a)   Median = 68
(b)   Interquartile range
$= 73.5 - 63$
$= 10.5$