

12.2 Solutions (Test)

GCSE Mathematics Statistics II : Handelling and Processing Data

Answer 1

(a) Put the data in order.

14	15	16	16	17	18	18	19
19	20	20	21	21	23	24	26
26	26	27	28	28	30	30	

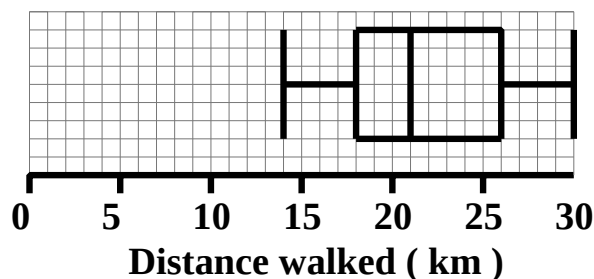
[2 marks]

(b) $\frac{23 + 1}{4} = 6^{\text{th}}$

- (i) LQ is 6th from left which is 18
- (ii) Median is 12th from either end which is 21
- (iii) UQ is 6th from right which is 26
- (iv) IQR = 8

[4 marks]

(c)



[5 marks]

Answer 2

(a)

Number of stars	*	**	***	****	*****
Frequency	1	3	4	6	6
Contribution to Total	1	6	12	24	30

[3 marks]

(b)
$$\text{mean} = \frac{1 + 6 + 12 + 24 + 30}{20}$$

$$= \frac{73}{20} = 3.65 \text{ stars}$$

[3 marks]

Answer 3

(a) $\frac{9}{25} \times 100 = 36 \% \text{ pass.}$

[2 marks]

(b) $\frac{25 + 1}{2} = 13^{\text{th}}$ which is 2 minor errors.

[2 marks]

Answer 4

(a) The modal class is $50 < w \leq 60$

[1 mark]

(b)

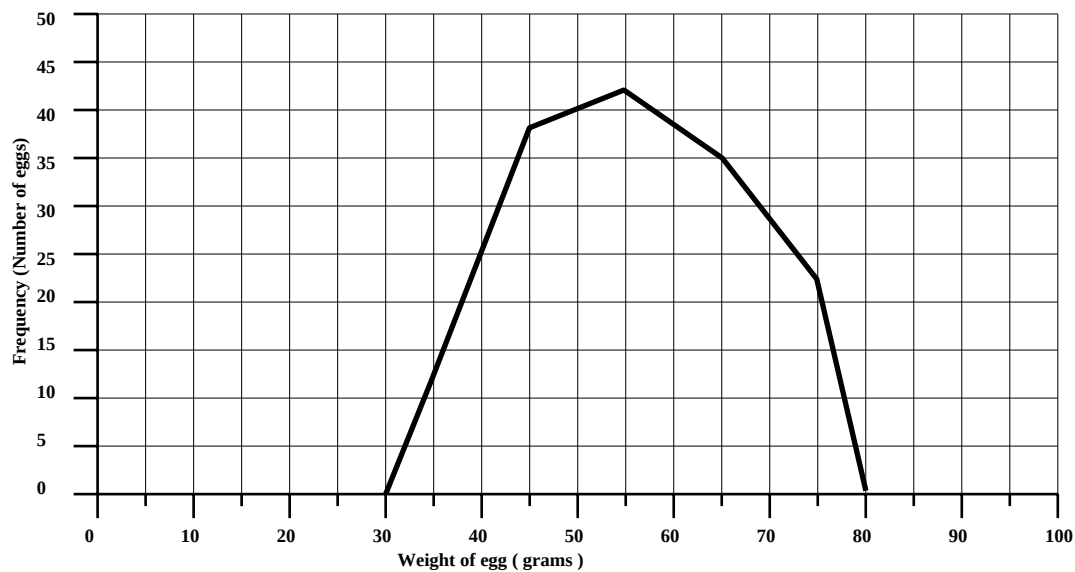
Weight (w grams)	Number of eggs	Mid Interval	Contribution to Total
$30 < w \leq 40$	13	35	455
$40 < w \leq 50$	38	45	1710
$50 < w \leq 60$	42	55	2310
$60 < w \leq 70$	35	65	2275
$70 < w \leq 80$	22	75	1650

$$\begin{aligned} \text{mean} &= \frac{455 + 1710 + 2310 + 2275 + 1650}{150} \\ &= \frac{8400}{150} \\ &= 56 \text{ grams} \end{aligned}$$

[4 marks]

(c)

A frequency polygon to show to distribution of the weights of 150 eggs

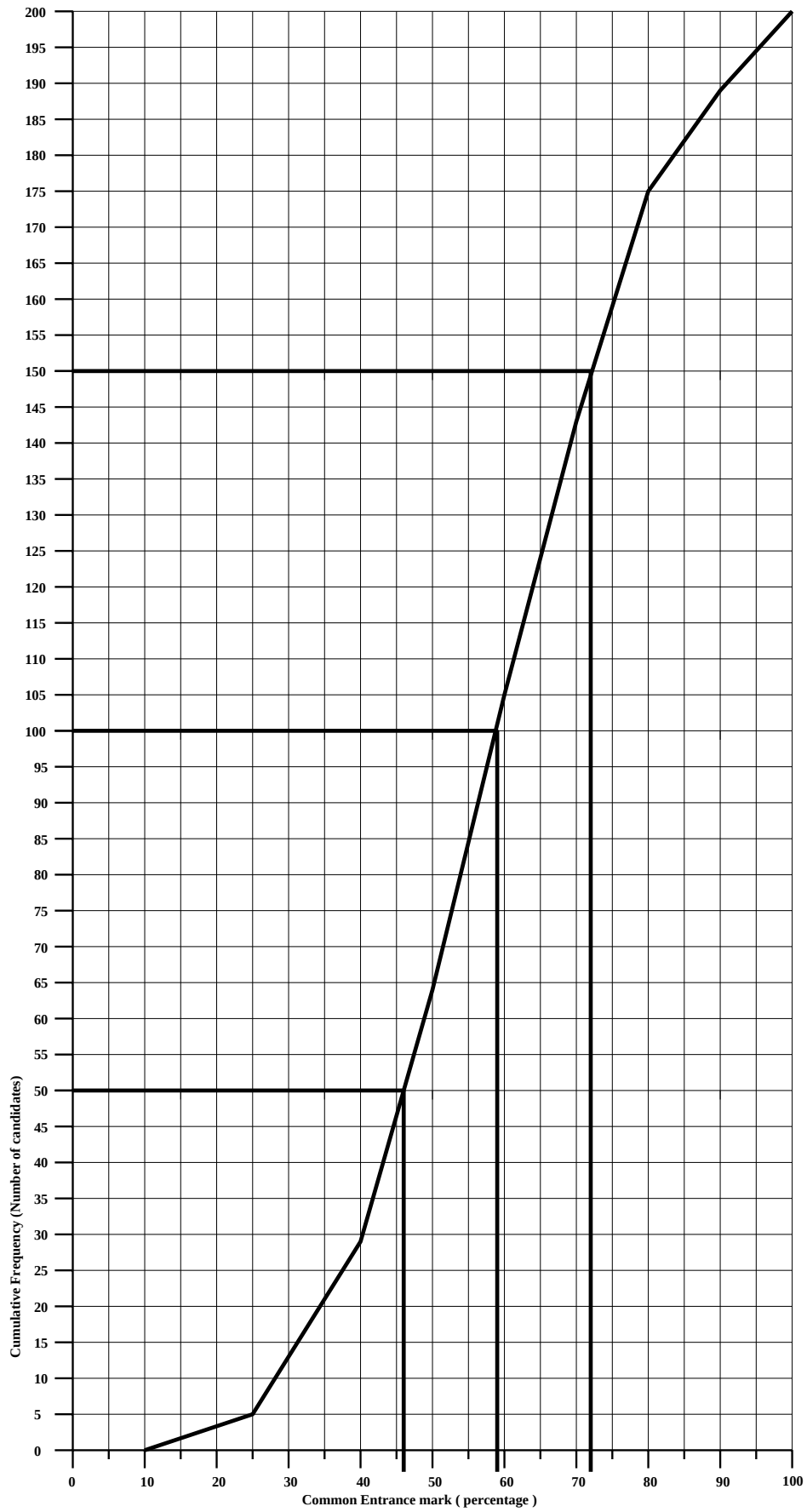


[4 marks]

Answer 5**(a)**

Mark (m percent)	Frequency	Cumulative Frequency
$1 \leq m \leq 10$	0	0
$11 \leq m \leq 20$	5	5
$21 \leq m \leq 30$	8	13
$31 \leq m \leq 40$	16	29
$41 \leq m \leq 50$	35	64
$51 \leq m \leq 60$	41	105
$61 \leq m \leq 70$	38	143
$71 \leq m \leq 80$	32	175
$81 \leq m \leq 90$	14	189
$91 \leq m \leq 100$	11	200

[3 marks]**(b)** 200 candidates**[1 mark]****(c)** 29 scored 40% or less**[1 mark]****(d)** 136 scored more than 50%**[2 marks]****(e)** See the graph on the next page.**[3 marks]****(f)** *From the graph,***(i)** LQ is 47**(ii)** Median is 57**(iii)** UQ is 72**(iv)** IQR is 25**[4 marks]**



Answer 6**(a)**

Number of minutes	Frequency	Mid Interval	Contribution to total
$0 \leq m < 2$	6	1	6
$2 \leq m < 4$	8	3	24
$4 \leq m < 6$	9	5	45
$6 \leq m < 8$	7	7	49
$8 \leq m < 10$	8	9	72
$10 \leq m < 12$	8	11	88
$12 \leq m < 14$	4	13	52
$14 \leq m < 16$	1	15	15

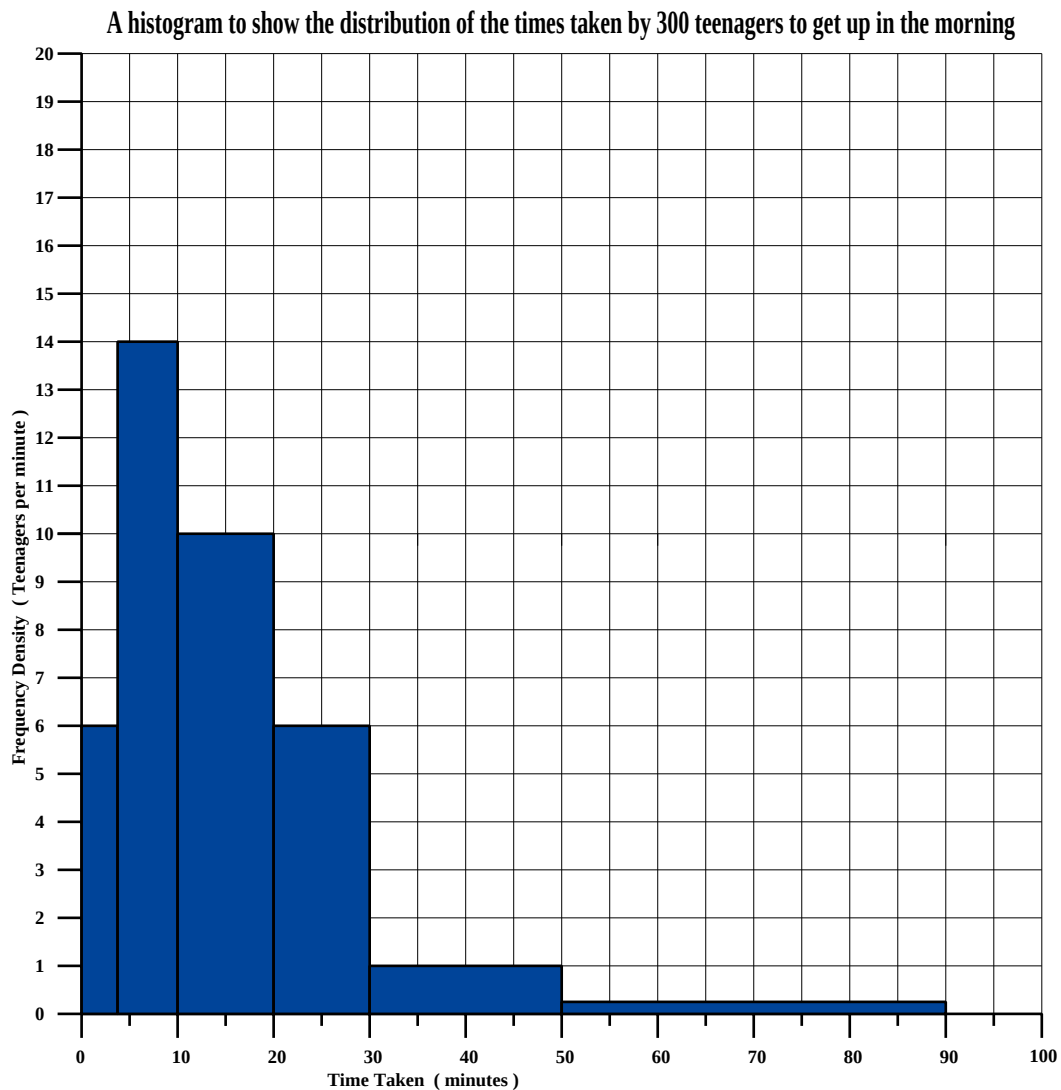
[2 marks]**(b)**

$$\begin{aligned} \text{mean} &= \frac{6 + 24 + 45 + 49 + 72 + 88 + 52 + 15}{6 + 8 + 9 + 7 + 8 + 8 + 4 + 1} \\ &= \frac{351}{51} \\ &= 6.9 \text{ minutes} \end{aligned}$$

[4 marks]

Answer 7

Time Taken (t minutes)	Frequency	Width	Height
$0 < t \leq 4$	24	4	6
$4 < t \leq 10$	84	6	14
$10 < t \leq 20$	100	10	10
$20 < t \leq 30$	60	10	6
$30 < t \leq 50$	20	20	1
$50 < t \leq 90$	12	40	0.3



[10 marks]

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