

Histogram Past Paper Answers GCSE Edexcel – Non- Calculator

1.

Question	Working	Answer	Mark	Notes										
(a)	<table border="1"> <tr> <td>F</td> <td>15</td> <td>25</td> <td>36</td> <td>24</td> </tr> <tr> <td>Fd</td> <td>3</td> <td>5</td> <td>3.6</td> <td>1.2</td> </tr> </table>	F	15	25	36	24	Fd	3	5	3.6	1.2	Correct histogram	3	B3 for fully correct histogram (overlay) (B2 for 3 correct blocks) (B1 for 2 correct blocks of different widths) SC : B1 for correct key, eg. $1 \text{ cm}^2 = 5$ (cars) or correct values for (freq \div class interval) for at least 3 frequencies (3, 5, 3.6, 1.2) NB: The overlay shows one possible histogram, there are other correct solutions.
F	15	25	36	24										
Fd	3	5	3.6	1.2										
(b)	$\frac{3}{4} \times 24$	18	2	M1 for $\frac{3}{4} \times 24 (=18)$ oe $\frac{1}{4} \times 24 (=6)$ oe A1 cao OR M1 ft histogram for $15 \times "1.2"$ or $5 \times "1.2"$ A1 ft										

2.

	$12 \div 10 = 1.2$ $15 \div 5 = 3$ $13 \div 5 = 2.6$ $18 \div 10 = 1.8$ $3 \div 15 = 0.2$	Histogram	3	B3 for fully correct histogram (B2 for 4 correct blocks) (B1 for 3 correct blocks) (If B0, SC B1 for correct key eg $1 \text{ cm}^2 = 2$ (calls) Or frequency \div class interval for at least 3 frequencies) NB Apply the same mark scheme if a different frequency density is used.
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3.

(i)		38 30	3	M1 for evidence of frequency density calculation, eg 6 on the frequency density axis for the height of the first column or 5 is 1 cm^2 can be implied 30 as the second missing frequency A1 for 38 and 30
(ii)		30–50 bar height 0.8 cm		B1 for 30 – 50 bar of height 0.8 cm

4.

Question	Working	Answer	Mark	Notes
(a)		7.5	2	M1 for $\frac{12}{18}$ oe or $\frac{18}{12}$ oe or $\frac{12}{5}$ oe or $\frac{5}{12}$ oe A1 cao
(b)		45	3	M1 for $\left(\frac{3}{2}\right)^2$ oe or $\left(\frac{2}{3}\right)^2$ oe M1 for complete method to find area of shaded region, eg $36 \times 1.5^2 - 36$ A1 cao (SC B2 for 81)

5.

	$12 \times 20 + 10.8 \times 10 + 7 \times 15 + 5 \times 15 + 1.8 \times 30 + 0.6 \times 30$ $= 240 + 108 + 105 + 75 + 54 + 18$ $= 528 + 72 = 600$	12%	3	M1 for attempt to work out total area (eg =600) or area greater than 60 (eg =72) by using fd or counting squares M1 (dep) for $\frac{72}{600} \times 100$ oe (=12) A1 cao (must have % otherwise 2 marks)
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6.

Question	Working	Answer	Mark	Notes																		
	<table border="1"> <thead> <tr> <th>Height h m</th> <th>Freq</th> <th>FD</th> </tr> </thead> <tbody> <tr> <td>$0 < h \leq 2$</td> <td>7</td> <td>3.5</td> </tr> <tr> <td>$2 < h \leq 4$</td> <td>14</td> <td>7</td> </tr> <tr> <td>$4 < h \leq 8$</td> <td>18</td> <td>4.5</td> </tr> <tr> <td>$8 < h \leq 16$</td> <td>24</td> <td>3</td> </tr> <tr> <td>$16 < h \leq 20$</td> <td>10</td> <td>2.5</td> </tr> </tbody> </table>	Height h m	Freq	FD	$0 < h \leq 2$	7	3.5	$2 < h \leq 4$	14	7	$4 < h \leq 8$	18	4.5	$8 < h \leq 16$	24	3	$16 < h \leq 20$	10	2.5	3	3	B3 fully correct histogram with horizontal axis correctly scaled (B2 for 4 correct blocks or 5 correct blocks with incorrect or no scale) (B1 for 2 correct blocks of different widths or any 3 correct blocks) SC : B1 for key, eg. $1 \text{ cm}^2 = 2$ (trees) or correct values shown for (freq \div class interval) for at least 3 frequencies (3.5, 7, 4.5, 3, 2.5)
Height h m	Freq	FD																				
$0 < h \leq 2$	7	3.5																				
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$16 < h \leq 20$	10	2.5																				

7.

Question	Working	Answer	Mark	Notes
	Total area = $(0.12 \times 40) + (0.36 \times 20) + (0.7 \times 20) + (0.56 \times 20) + (0.18 \times 40)$ $= 44.4$ Area ($140 < w < 200$) = $(0.36 \times 20) + (0.7 \times 20) + (0.56 \times 20) = 32.4$ $32.4 \div 44.4$	0.73	4	M1 for a method to find the frequency or the area of any one block M1 for a method (with correct values) to find total area of all blocks or 44.4 or 1110 or a correct method (with correct values) to find total area of middle 3 blocks or 32.4 or 810 M1 (dep on M2) for a correct method to find required proportion (could lead to a decimal or a percentage or a fraction) A1 for answer which rounds to 0.73 or 73% or $\frac{27}{37}$ or equivalent fraction

8.

	0.94 or 94% or $\frac{76}{81}$	3	M1 for method to work out total area eg $1.3 \times 10 + 3.2 \times 5 + 3.6 \times 5 + 2.4 \times 10 + 0.5 \times 20$ (=81) or area up to 100 grams eg $1.3 \times 10 + 3.2 \times 5 + 3.6 \times 5 + 2.4 \times 10 + 0.5 \times 10$ (=76) (In either case allow one error in reading a bar height) M1 for $1 - ((0.5 \times 10) / "81")$ oe or for method to work out the total area and the area up to 100 grams (In both cases allow one error in reading a bar height) A1 for answer in range 0.938 to 0.94 or 93.8% to 94% or $\frac{76}{81}$ oe
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9.

$0 < t \leq 5$ $fd = 8 \div 5 = 1.6$ $5 < t \leq 15$ $fd = 32 \div 10 = 3.2$ $15 < t \leq 30$ $fd = 36 \div 15 = 2.4$ $30 < t \leq 40$ $fd = 18 \div 10 = 1.8$ $40 < t \leq 60$ $fd = 6 \div 20 = 0.3$	Correct histogram	3	B3 for a fully correct histogram with vertical axis correctly scaled or with a key, eg. $2 \text{ cm}^2 = 1$ (B2 for at least 4 correct blocks with or without a scale or a key OR for all five fd correct) (B1 for 2 correct blocks of different widths or for at least three correct fd values)
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10.

Question	Working	Answer	Mark	Notes
(a)		(4), 9, 8, 10, 12	2	M1 for correct calculation to find one frequency e.g. 0.9×10 or 1.6×5 or 1×10 or 0.8×15 or for one frequency correct or shows that $1 \text{ cm}^2 = 1$ A1 for all frequencies correct
(b)		$\frac{8}{43}$	2	M1 for 8 (people) or $\frac{2}{3}$ of "12" A1 ft for 8 out of 43 stated as a percentage or fraction or decimal
(c)		26000	2	M1 ft for finding the interval in which the "21.5 th " or "22 nd " value lies or 26 or 25.5 A1 for 26000 or 25500