

Statistics – Paper 2 – Mark Scheme

Question 1

1	(a) -5	1	
	(b) 11	1	

Question 2

9	(a) 5 or -5	1	
	(b) -0.714 (-0.7143 to -0.7142) or $-\frac{5}{7}$	2	M1 for $-2 + 2 + 1 - 3 - 1 - 2$ and $\div 7$

Question 3

6	7	2	M1 $\frac{8+4+8+9+y}{5} = 7.2$ oe
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Question 4

4	(a) -3	1	
	(b) 4	1FT	FT their numerical mode

Question 5

4	(a) 7	1	
	(b) Any number except 3, 7 or 20	1	

Question 6

5	7 nfw	2	M1 for 7.5×8 or for $(7 + 8 + 8 + y + 6 + 9 + 10 + 5) \div 8 = 7.5$ or better oe
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Question 7

11	68 76 78 78	3	B1 for four values with a mode of 78 B1 for four values with a median of 77 B1 for total of four values is 300
6	Thursday	2	M1 for 5.4 found or at least two of: 3.8, 3.6 and 4 found

Question 8

6	(a) 4	1	
	(b) 2	1	
	(c) 1 cao	1	

Question 9

20	(a)	$10 < h \leq 13$	1	M1 for at least 5 correct mid-values seen M1 for $\sum fx$ where x is in the correct interval M1 for their $\sum fx \div 200$ B1 for 3 or 4 correct
	(b)	12.1[2] www	4	
	(c)	70, 115, 153, 185, 200	2	

Question 10

22	(a)	3.5 nfw	3	M1 for $\sum fx$ soi M1 (dep) for $\div 24$
	(b)	2 nfw	3	M2FT for $\frac{their 84 + x}{25} = 3.44$ or better or M1 for 25×3.44

Question 11

16	44.1 or 44.07...	4	M1 for 4 of mid-values 15 30 45 55 75 soi M1 for $\sum fx$ for any x in intervals including boundaries M1 dep for $\sum fx \div 70$ Dep on 2nd M mark earned
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Question 12

15	(a)	29 to 29.5	1	M1 8 seen
	(b)	20 to 20.5	1	
	(c)	14 to 14.5	1	
	(d)	$\frac{13}{15}$ oe or 0.867	2	

Question 13

18	(a)	$\frac{7}{25}$ or $\frac{84}{300}$ oe	1	B1 for 175 seen
	(b) (i)	62	1	
	(ii)	52	1	
	(iii)	19 to 20	1	
	(iv)	125	2	

Question 14

20	(a)	4.05 to 4.2	1	
	(b)	2.6 to 2.75	2	B1 for 9.6 seen
	(c)	2.05 to 2.25	2	B1 for [UQ] 5.0 to 5.1 and [LQ] 2.85 to 2.95 seen
	(d)	$\frac{5}{48}$	2	M1 for 5

Question 15

18	(a)	19–19.1	1	
	(b)	3	2	M1 for 47 seen
	(c)	4.9 to 5.7	2	B1 for [UQ] 21.7 to 22.2 and [LQ] 16.5 to 16.8
	(d)	$\frac{45}{50}$ oe	2	B1 for 45 seen or SC1 for $\frac{5}{50}$ isw

Question 16

20	(a)	34	1	
	(b)	16	2	B1 for 24 or 40 seen
	(c)	30	1	
	(d)	120	1	

Question 17

18	(a)	56	2	B1 for 16 soi or M1 for 72 – <i>their</i> 16
	(b) (i)	63 or 63 to 63.5	1	
	(ii)	22 or 21.6 to 23 nfw	2	B1 for 49.8 to 50.2 seen or 71.8 to 72.8

Question 18

17	(a)	3.08 to 3.22 nfw	2	B1 for 502.5 to 502.62 or 505.7 to 505.8
	(b)	$\frac{16}{200}$ oe	2	B1 for 16 soi or M1 for $\frac{their\ 16}{200}$
	(c)	18.5 26 3	2	B1 for 18.5 and 26 B1 for 3

Question 19

22	(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 20

17	(a)	6	1	
	(b)	2	2	M1 for 7 identified as the UQ or 5 identified as the LQ or both lines drawn from the 150 and 50 across and down to the horizontal axis
	(c)	180	2	M1 for answer 20 or line or mark on graph indicating 20

Question 21

24	(a)	6.2	1	
	(b)	5.8	2	M1 for 24 soi
	(c)	70	2	M1 for 10 soi

Question 22

22	(a)	1.5 nfw	2	B1 for 2.5 or 1
	(b)	3.5	2	B1 for 114 soi
	(c)	18	2	B1 for 102 soi

Question 23

18(a)	10 nfw	2	B1 for UQ = 30 or LQ = 20 clearly identified
18(b)	4	2	B1 for 116 indicated

Question 24

7	$u = 24(.0), v = 0.6$	2	B1 each
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Question 25

12	40	6	2	B1 for one correct
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Question 26

20	(a)	240	2	M1 for any three pairs of products from $2.5 \times 12, 2.5 \times 26, 5 \times 15, 5 \times 10, 10 \times 2$
	(b)	29.2 or 29.16 to 29.17	2	M1 for $(5 \times 10 + 10 \times 2) / \text{their (a)}$ or for their total of the bars above 10 minutes \div their (a)

Question 27

22	1	3.5	1	4	B3 for 2 correct B2 for 1 correct or M1 for 2, 7, [...] and 2 seen [FDs]
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Question 28

13	15 and 22	2	M1 for 1.5×10 or 1.1×20
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Question 29

12	(a) Negative	1	Ignore embellishments
	(b) Correct point	1	
	(c) (i) Accurate ruled line	1	
	(ii) English mark	1ft	

Question 30

16	(a) Points plotted correctly	2	B1 6 or 7 points correct
	(b) Positive	1	
	(c) Line of best fit ruled	1	

Question 31

17	(a)	7 correct plots	2	P1 for 5 or 6 correct
	(b)	Negative	1	
	(c)	ruled line of best fit within tolerance	1	

Question 32

1	Negative	1	
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Question 33

21(a)	140 000	1	
21(b)	Points correctly plotted at (40, 80) and (80, 150)	1	
21(c)	Correct ruled line of best fit	1	
21(d)	80000 to 110 000	1	FT their straight line provided it has positive gradient

Question 34

14	(a) 84	1	M1 $\frac{120}{360} \times 2 \times \pi \times 3$ oe
	(b) 15	1	
	(c) 6.28	2	

Question 35

16	(a) Petrol cao	1	M1 for $360 \times 12 \div 60$ B1 $\frac{6}{60}$ or $\frac{3}{30}$ or $\frac{2}{20}$ or 0.1 or 10%
	(b) 72	2	
	(c) $\frac{1}{10}$	2	

Question 36

4	160	2	M1 for $\frac{8}{18} \times 360$ oe
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Question 37

17 (a)	correct working	2	M1 for 1 holiday = 5 or $360 \div 72 = 5$ and B1 for $24 \times 5 [= 120]$ or M2 for $\frac{24}{72} \times 360 [= 120]$ oe
(b)	6 nfw	3	M1 for $150 + 120 + x + 2x = 360$ oe A1 for 30 identified as the required angle

Question 38

2	84	2	M1 for $\frac{7}{6+8+9+7}$ or $\frac{360}{6+8+9+7}$
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Question 39

4	30	2	M1 for $2x + 3x + 4x + 90 = 360$ oe
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Question 40

23(a)(i)	4	1	
23(a)(ii)	3.2	3	M1 for Σfx , allow one error or omission and M1dep for $\frac{\text{their } 128}{40}$
23(b)	27	2	M1 for $\frac{3}{40}$ or $\frac{360}{40}$