

Topic 9 Statistics 1 (Post-TT) [37] MARKSCHEME

- 1.
- (a) 273 [B1]
282.75 and 288 [A1]
- (b) They are increasing [R1]
- 2.
- (a) £17 B1
- (b) Because this student is not typical of the ones in the scatter diagram B1
Danger of extrapolation
Not "off the graph" or "small amount of data"
- [2]
- 3.
- $(1 \times) 25 + 2 \times 17 + 3 \times 6 + 4 \times 2$ M1
Attempt at $\sum fx$ at least 3 products summed seen eg 83 – 87
- $85 \div 50$ M1 dep
Evidence of $\sum fx \div 50$
eg 83 – 87 $\div 50$
- $= 1.7$ A1
Accept 2 from correct working
- [3]
- 4.
- (a) correct midpoints 2.5, 7.5, 12.5 and 17.5 B1
- $\sum mf = 375$ M1
40, 157.5, 125, 52.5 allow 1 error
- mean = 7.5 A1
- (b) correct polygon or histogram B2
-1 eooo
eg curve or incorrect point
if all plots consistently at r.h. edge of the intervals, award SCI
- [5]
- 5.
- (a) 3 B1
- (b) Line between limits B1
Passing between (20, 71) and (20, 76)
(inclusive) at one end and (65, 47) and (70, 50)
(inclusive) at the other. If not 'ruled' BO.
- (c) (63) B1ft
ft their line. $\pm lmm$
- (d) Negative correlation or B1
More miles run, lower pulse rate
oe
- [4]

6.			
(a)	Sight of midpoints 11, 13, 15, 17 <i>All 4 seen (only 4)</i>	B1	
	$(11 \times 21) + (13 \times 49)$ $+ (15 \times 37) + (17 \times 13)$ or $231 + 637 + 555 + 221$ <i>Attempt at $\sum fx$ using x in or on the class boundaries (all 4 products)</i>	M1	
	$'1644' \div 120$ <i>Dep on M1</i>	M1 dep	
	$= 13.7$ accept 13 mins 40 sees <i>Accept 14 from correct working</i>	A1	
(b)	90×15.8 or 1422	M1	
	$(\text{'1422'} + \text{'1644'}) \div 210$ <i>ft any mean in (a) or total in (a)</i>	M1	
	$= 14.6$ <i>SCI Fully correct method from 15.8 to 16 and/or 13.7 to 14</i>	A1	
			[7]
7.			
(a)	7 <i>Accept '7 out of 30' etc; 7/30 penalise once</i>	B1	
(b)	$3+5+1$ $= 9$	M1 A1	
			[3]
8.			
(a)	Points plotted correctly <i>-1 eeo</i>	B2	
(b)	Suitable line of best fit drawn <i>Horizontally from 2 to 10 $\pm \frac{1}{2}$ sq</i> <i>Vertically between (2, 30) and (3, 26) <u>and</u> (8, 45) and (7, 38)</i>	Blft	
(c)	'30' <i>Strict follow through from line</i>	Blft	
(d)	Positive	B1	
(e)	No data around 15 Line may change/curve	B1	
			[6]

9.

Using correct midpoints forming products and summing

$$30 + 20f + \dots$$

M1

*At least two correct products summed
Sight of 680 implies M1*

Obtaining the numerator "680" + 20f and correct denominator 20 + f

M1

Both seen

Setting up correct equation

$$\frac{"680" + 20f}{20 + f} = 30$$

M1 dep

*Depends on both M1s in any form
(2nd M1 may be given here)*

$$f = 8$$

A1

May use trial and improvement \Rightarrow 4 marks

[4]