

Question	Scheme	Marks	AOs
3(a)	Numbering the data 0-183 or 1-184	B1	2.4
	Generate 20 (distinct) random numbers and select the data corresponding to these numbers	B1	1.1b
		(2)	
(b)(i) (ii)	Negative correlation	B1	1.2
	The data loosely lies along a line with a negative gradient	B1	2.4
		(2)	
(c)	$H_0 : \rho = 0 \quad H_1 : \rho < 0$	B1	2.5
	CV = ± 0.3783	M1	1.1b
	$-0.554 < -0.378(3)$ or $0.554 > 0.378(3)$ so in critical region Evidence of a negative correlation	A1	2.2b
		(3)	
(d)	No, as correlation coefficient is invariant to (linear) coding	B1	2.4
		(1)	

(8 marks)

Notes:

(a)	B1:	Describes numbering the data in an appropriate manner that shows an understanding of the LDS covering only six months (not including February) Accept: - a starting point of 0 and an end point of 179-185 inclusive or - a starting point of 1 and an end point of 180-186 inclusive
	B1:	Describes finding 20 random numbers and selecting the corresponding data. No reference to distinct or ignoring repetition is required for this mark.
(b)(i)	B1:	For stating negative. ‘Negative skew’ is B0 though
(ii)	B1:	For a suitable reason referencing linearity with a negative gradient. Condone generally higher temperature implies lower pressure oe
(c)	B1:	Both hypotheses in terms of ρ , do not accept r
	M1:	For the CV, sight of 0.3783 or any CV such that $0.25 < r < 0.5$
	A1:	A comparison of 0.3783 and 0.554, must compare values of the same sign Comment referencing ‘negative correlation’ Do not allow contradictory statements
(d)	B1:	No with a reason referencing that the pmcc does not change with coding