

Qu 2	Scheme	Marks	AO
(a)	Negative	B1 (1)	1.2
(b)(i)	Rainfall	B1	2.2b
(ii)	mm   <u>or</u>   hPa or Pascals or hectopascals or mb or millibars	B1ft (2)	1.1b
(c)	$H_0 : \rho = 0$ $H_1 : \rho \neq 0$ Critical value: $-0.361(0)$ $r < -0.3610$ so significant result and there is evidence of a correlation between Daily Total <u>Sunshine</u> and Daily Maximum Relative <u>Humidity</u>	B1 M1 A1 (3)	2.5 1.1b 2.2b
(d)	Humidity is high and there is evidence of correlation and $r < 0$ So expect amount of sunshine to be <u>lower</u> than the <u>average</u> for Heathrow(oe)	B1 (1)	2.2b
		( 7 marks)	
Notes			
(a)	B1 for stating negative. “Negative skew” is B0 though		
(b)(i)	B1 for mentioning “rainfall” (allow “rain” <u>or</u> “precipitation”) <u>or</u> “pressure” (if more than 1 answer both must be correct) NB the other quantitative variable for Perth is: Daily Mean Wind Speed and scores B0 [Not allowed “wind speed” since $r = +0.15$ and in winter might expect wind to raise temp]		
(ii)	B1ft for giving the correct units. If Daily Mean Wind Speed (kn) or knots “Wind speed” and “knots” would score B0B1 but any other variable scores B0B0		
(c)	B1 for both hypotheses correct in terms of $\rho$ M1 for the correct critical value compatible with their $H_1$ : allow $\pm 0.361(0)$ If the hypotheses are 1-tail then allow cv of $\pm 0.3061$ e.g. Alternative hypothesis with $r < \pm 0.377$ implies a one-tail test <u>or</u> $H_0$ and $H_1$ in words saying “ $H_0$ : there is no correlation, $H_1$ : there is correlation” is two-tail If there are no hypotheses (or they are nonsensical) assume 2-tail so M1 for $\pm 0.361(0)$  A1 for a correct conclusion in context based on comparing $-0.377$ with their cv. Condone incorrect inequality e.g. $-0.3610 < -0.377$ as long as they reject $H_0$ Do not accept contradictory statements such as “accept $H_0$ so there is evidence of ...” Can say “support for Stav’s <u>belief</u> ”(o.e.e.g. “claim”) or “evidence of a correlation between <u>sunshine</u> and <u>humidity</u> ” condone “negative correlation” or comments such as “if humidity is high amount of sunshine will be low”		
(d)	B1 for stating <u>low</u> amount of sunshine (o. e.) <b>and</b> some reference to $r < 0$ or fog Check for the following 2 features: (i) <b>low</b> sunshine: allow $\leq 5$ hrs (LDS mean for 2015 is 5.3, humidity 97% is 4.1, $\geq 97\%$ is 3.1) (ii) <b>negative</b> correlation may be described in words e.g. “high humidity gives low sunshine” <u>or</u> <b>fog</b> (LDS says $>95\%$ humidity is foggy) so less sunshine		