Question 3 (Total 9 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$H_0 : \rho = 0$ $H_1 : \rho > 0$	B1	This mark is given for both hypotheses in terms of ρ found correctly
	For sample size 24 at the 5% level of significance, the critical value = 0.3438	M1	This mark is given for selecting a suitable critical value compatible with H_1
	0.4771 > 0.3438, so reject H_0 There is evidence that the product moment correlation coefficient (pmcc) is greater than 0	A1	This mark is given for a correct conclusion stated
(b)	The value of the pmcc is close to 1 so there is a strong positive correlation	B1	This mark is given for a correct explanation about the strength of the correlation
(c)	$\log_{10} y = -0.47 + 0.92 \log_{10} x$	M1	This mark is given for a correct substitution of both c and m
	$y = 10^{-0.47 + 0\,92 \log x}$	M1	This mark is given for dealing with logs to find an expression in terms of y
	$y = 10^{-0.47} \times 10^{\,0.92 \log x}$ $y = 10^{-0.47} \times 10^{(\log x)^{0\,92}}$	M1	This mark is given for a method to find values for a and n
	$y = 0.34 \times x^{0.92}$	A1	This mark is given for find a correct value of $a = 0.34$
		A1	This mark is given for find a correct value of $n = 0.92$