Question Number	Scheme		Marks
10			
(a)	$\log_x 1024 = 5 \quad x^5 = 1024 \quad x = 4$		M1A1 (2)
(b)	$\log_5(6y+11) = 3 \quad 6y+11 = 5^3 = 125, \quad y = \frac{114}{6} = 19$		M1,M1A1 (3)
(c)	$2\log_3 t + \log_t 9 = 5$		
	$\frac{2}{\log_t 3} + 2\log_t 3 = 5$	$2\log_3 t + \frac{2}{\log_3 t} = 5$	M1 (change base)
	$2(\log_t 3)^2 - 5\log_t 3 + 2 = 0$	$2(\log_3 t)^2 - 5\log_3 t + 2 = 0$	A1
	$(2\log_t 3 - 1)(\log_t 3 - 2) = 0$	$(\log_3 t - 2)(2\log_3 t - 1) = 0$	M1
	$\log_t 3 = \frac{1}{2} \quad 3 = \sqrt{t} \quad t = 9$	$\log_3 t = 2 \quad t = 3^2 = 9$	M1A1
	$\log_t 3 = 2 \quad 3 = t^2 \quad t = \sqrt{3}$	$\log_3 t = \frac{1}{2} \quad t = 3^{\frac{1}{2}}$	A1 (must be positive) (6)
			[11]

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