Topic Test Mark Scheme

Surds (Higher)

Q	Answer	Mark	Comments
1(a)	225	B1	
1(b)	$\sqrt{12}$	M1	oe
	$2\sqrt{3}$	A1	
1(c)	30	B1	
2	$5\sqrt{5}$	B1	
3	$2\sqrt{3}$	B1	
4	**Alternative method 1**		
	$\left(\sqrt{3}\right)^2 + 2 \times \sqrt{3} \times \sqrt{27} + \left(\sqrt{27}\right)^2$	M1	
	$3 + 2 \times 9 + 27$ (= 48)	A1	
	Alternative method 2		
	$\left(\sqrt{3}\right)^2\left(1+3\right)^2$	M1	
	3×4^2 (= 48)	A1	
5	$\frac{24 \times \sqrt{6}}{\sqrt{6} \times \sqrt{6}}$	M1	
	$4\sqrt{6}$	A1	

Q	Answer	Mark	Comments
6(a)	r^5	B1	
6(b)	$\sqrt{8} = 2\sqrt{2}$	B1	
	$72 + 18\sqrt{2}$	B1	
	$18\left(4 + \sqrt{2}\right)$	B1	
7	$3 + \sqrt{2} + 6\sqrt{2} + 4$	M1	
	$7 + 7\sqrt{2}$	A1	
8	$\left(3 + \sqrt{3}\right)^2 = 9 + 6\sqrt{3} + 3$	M1	oe
	$\left(2 + \sqrt{12}\right)^2 = 4 + 4\sqrt{12} + 12$ and $\sqrt{12} = 2\sqrt{3}$	M1	
	$\left(5 + \sqrt{3}\right)^2 = 25 + 10\sqrt{3} + 3$	M1	
	No as $28 + 10\sqrt{3} \neq 28 + 14\sqrt{3}$	A1	