Mark scheme H UNIT 1

This test is divided into non-calculator (30 marks/minutes) and calculator (20 marks/minutes) sections which can be delivered separately.

The following marks are awarded for each question.

B	Unconditional accuracy mark
M	Method mark – the correct method must be shown but there may be an arithmetic error; the sight of the value given in brackets implies the award of the method mark
A	Accuracy mark – unless the question specifies that working **must** be shown then the sight of the correct answer implies the award of full marks (unless the answer clearly comes from incorrect working)
C	Communication mark
P	Process mark to show correct process for problem solving. Any other process of a similar standard to achieve an accurate result is acceptable to achieve this mark
FT	Incorrect values may be **followed through** from one step to the next **provided** that the correct method is seen in each step and the only errors are arithmetic. This is shown in mark schemes by putting a number in inverted commas
OE	Or equivalent answer mark

Non-Calculator			
Q	**Answer**	**Mark**	**Comment**
1	10	M1	correct numerator of 10×5
		M1	correct denominator of $8 - 3$
		A1	
3	8.3 and 8.4	P1	for testing values between 8 and 9 inclusive (could be implied by answer)
		P1	for 8.2 and 8.3 or 8.4 and 8.5 or $8.3^2 = 68.89$ or $8.4^2 = 70.56$
		A1	

5a	2.0272	B1	
5b	72.4	B1	
5c	362	M1	for 20272 ÷ 28 ÷ 2 or 724 ÷ 2
		A1	
7	$\frac{5}{2}$ OE	P1	for $\sqrt{8} = 2^{\frac{3}{2}}$ or $4 \times 8 = 2^{2n}$
		A1	
9	$\frac{8}{27}$	P1	for first step, e.g. $\left(\frac{3}{2}\right)^{-3}$ or $\left(\frac{4}{9}\right)^{\frac{3}{2}}$ or $\left(\frac{729}{64}\right)^{\frac{-1}{2}}$
		P1	for two steps, e.g. $\left(\frac{2}{3}\right)^{3}$ or $\left(\frac{64}{729}\right)^{\frac{1}{2}}$
		A1	

	Calculator		
11	0.12 and 0.6	P1	for any two decimals whose product is 0.072
		A1	
13a	1.969	B1	for 1.97 or 1.9691....
		B1	
13b	1.5	B1	accept $\frac{3}{2}$ or $1\frac{1}{2}$

15a	$2^6 \times 3^5$	B1	
15b	$2^7 \times 3^8 \times 7 \times 5$	P1	for either 2^7 or 3^8 in a product of factors
17a	3.48×10^{-2}	B1	
17b	29 000 000 000	B1	

Non-Calculator			
Question	**Topic**	**Step**	**Marks**
1	Place value	5th	3
3	Calculate with roots	7th	3
5a	Place value	6th	1
5b	Place value	6th	1
5c	Place value	6th	2
7	Fractional indices	10th	2
9	Fractional indices	11th	3

Calculator			
11	Apply the four operations to decimals	5th	2
13a	Calculate with roots, and with integer indices & Place value	6th	2
13b	Calculate with roots	6th	1
15a	HCF	7th	1
15b	LCM	7th	2
17a	Standard form	8th	1
17b	Standard form	8th	1