QUESTION NUMBER	SCHEME	MARKS
4		
4(a)	Equation of motion	M1
	$D-30=70(0.4)$	A1
	Use of $P=D\times 5$	M1
	$P=$ 290 (W)	A1
		(4)
4(b)	At least one correct KE term $\frac{1}{2}\times 70\times 8^2$ $\frac{1}{2}\times 70\times 5^2$	M1
	Work done against resistance = 250×30	B1
	Work-energy equation	M1
	$70gH=\frac{1}{2}\times 70\times 8^2-\frac{1}{2}\times 70\times 5^2+250\times 30$	A1
	H = 13 or 12.9 (m)	A1
		(5)
4(c)	Total work done	M1
	$70g(200\sin 5°)+(30\times 200)$	A1
	18000 (J)	A1
		(3)
		(12)
	Notes for question	
4(a)		
M1	Equation of motion. Dimensionally correct with all required terms and no extras.	
A1	Correct unsimplified equation.	
M1	Use of $P=D\times 5$	
A1	Correct answer, 290 (W)	
4(b)		
M1	At least one KE term correctly formed.	
B1	Expression seen for work done against resistance.	
M1	Work-energy equation. Dimensionally correct with all required terms and no extras or double counting. Mass must be replaced with 70. Condone sign errors.	
A1	Correct unsimplified equation.	
A1	Correct answer, 2/3sf	
4(c)		
M1	Expression for total work done. Dimensionally correct with all required terms and **no extras or double counting.** Mass must be replaced with 70. (the 200 may be used as 8x25)	
A1	Correct unsimplified expression for total work done.	
A1	Correct answer, 2/3sf	
	N.B. Penalise accuracy only once in entire question. **N.B**. Answers only in part a) M0A0M0A0, part b) M0B0M0A0 and in part c) M1A1A1	