Question Number	Scheme	Marks
4a	PE lost = $4g \times 1.5 - 2g \times 1.5\sin\theta$ $\left(= 6g - 3g \times \frac{3}{5}\right)$ $= \frac{21g}{5} = 41.2$ (J) or 41 (J)	M1A1 A1 cao **(3)**
4b	Friction $= \frac{1}{5} \times 2g\cos\theta$ Work done against friction $= 1.5 \times$ their F $= \frac{12g}{25} = 4.70$ (J) or 4.7(J)	B1 M1 A1 cao **(3)**
4c	Work-energy equation: gain in KE $= \frac{21g}{5} - \frac{12g}{25} = \frac{1}{2} \times 4v^2 + \frac{1}{2} \times 2v^2$ $\Rightarrow \left(v^2 = \frac{31g}{25}\right)$ $v = 3.49$ or 3.5	M1A1ft A1 **(3)** **Total 9**

Notes	
a	
M1	Attempt at a difference in 2 dimensionally correct GPE terms. Distance up slope must be resolved.
A1	Correct expression for change in GPE. Trig need not be substituted.
A1 cao	Correct answer, either in terms of g or to 2/3 s.f. Must be positive, since question asks for energy lost, but condone dropping of minus without justification, if subtracted the wrong way.
b	
B1	Correct expression for friction. Allow in terms of μ, as long as they state $\mu = 1/5$.
M1	Dimensionally correct attempt at WD with their friction. Must have found a friction.
A1 cao	Correct answer, either in terms of g or to 2/3 s.f.
c	
M1	Work energy equation with change in GPE, WD and 2 KE terms (possibly combined).
A1ft	Correct equation. Follow through their (dimensionally correct) GPE and WD terms.
A1 cao	Correct answer, either in terms of g or to 2/3 s.f.