Question	Scheme	Marks	AOs
3(a)	$(R =)mg\cos\alpha$	M1	3.4
	$=\frac{12}{13}mg$	A1	1.1b
		(2)	
3(b)	Equation of motion down the plane	M1	2.1
	$mg\sin\alpha - F = ma$ or $mg\sin\alpha - F = -ma$	A1	1.1b
	$(F =)\ \mu\times$ their R	M1	3.4
	$\frac{1}{13}g(5-12\mu)$ *	A1*	2.2a
		(4)	
3(c)	P wouldn't move	B1	2.4
		(1)	
			(7 marks)

Notes:

3a	M1	Correct no. of terms, condone sin/cos confusion and sign errors, dimensionally correct. Allow use of a different symbol for the angle.
	A1	Accept 0.92mg or better. Must be positive.
3b	M1	Correct no. of terms, condone sin/cos confusion and sign errors (M0 if they use g for a) **N.B.** Must be using mg or m not W for the weight.
	A1	Any correct equation e.g. $mg\sin\alpha = ma + F$ **N.B**. F does not need to be substituted.
	M1	$\mu\times$ **their** R seen (possibly on a diagram), any trig does not need to be replaced. M0 if they use $\mu = \frac{5}{12}$ M0 for just μR with R not replaced.
	A1*	Given answer correctly obtained, with at least one further line of working with both trig ratios substituted as fractions. Allow $\frac{g}{13}(5-12\mu)$ or $\frac{g(5-12\mu)}{13}$
3c	B1	e.g. P (or the particle or the object) would stay at rest, P would not slide down, would not roll down the plane, static equilibrium, equilibrium at rest Allow 'it' for P or just 'stays at rest oe' B0 for wouldn't accelerate, would be in equilibrium (only), would stop **N.B.** Ignore reasons but not contradictions.