Question	Scheme		Marks
2(a)	$mu - 2kmu = -\frac{1}{2}mu + kmu$ or $m\left(\frac{1}{2}u + u\right) = -km\left(-u - 2u\right)$	Use of CLM or Equal and opposite impulses Need all 4 terms dimensionally correct. Masses and speeds must be paired correctly Condone sign errors Condone factor of g throughout.	M1
	Unsimplified equation with at most one error		A1
	Correct unsimplified equation		A1
	$k = \frac{1}{2}$	From correct working only	A1
			(4)
(b)	For $P: I = \pm m(\frac{1}{2}u \pm -u)$ For Q: $I = \pm km(u \pm -2u)$	Impulse on P or impulse on Q. Mass must be used with the correct speeds e.g. $km \times \frac{1}{2}u$ is M0 If working on Q, allow equation using their k. Terms must be dimensionally correct. Use of g is M0	M1
	$\frac{3mu}{2}$	Only From correct working only	A1
			(2)
			(6 marks)