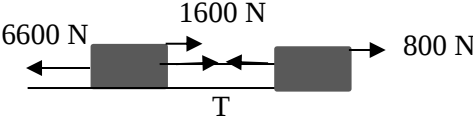


Question			Answer	Marks	AO	Guidance
9	(a)		Horizontal forces (could be mirror image) 	B1 B1 [2]	3.3 3.3	Ignore vertical forces. 6600 N and resistances correctly placed and labelled. No extra horizontal forces Common tension in the towbar shown.
9	(b)		Tractor and trailer together $6600 - 1600 - 800 = 2800a$ $a = 1.5 \text{ ms}^{-2}$ Newton's second law for the trailer $T - 800 = 1000 \times 1.5$ $T = 2300 \text{ N}$	M1 A1 M1 A1	3.1b 1.1b 3.1b 1.1b	2800 kg used. Allow a missing or an extra horizontal force for the method mark soi Newton's second law with correct mass. FT their acceleration Also allow for the tractor $6600 - T - 1600 = 1800 \times 1.5$ used cao
			Alternative method Newton's second law for the tractor $6600 - T - 1600 = 1800a$ Newton's second law for the trailer $T - 800 = 1000a$	M1 A1		Newton's second law for both parts of the system with correct masses; allow a missing or an extra horizontal force for the method mark Both equations correct
			Simultaneous equations giving $T = 2300 \text{ N}$	M1 A1		Attempt to solve simultaneous equations leading to a value of T BC means method need not be seen cao
				[4]		