Question Number	Answer		Mark
16a	Wave <u>reflected</u>	(1)	
	at the pulley	(1)	
	Superposition/interference (takes place)	(1)	**3**
16b	Use of $W = mg$	(1)	
	Use of $v = \sqrt{(T/\mu)}$	(1)	
	Use of $v = f\lambda$ to find λ	(1)	
	$\lambda = 1.2$ (m)	(1)	
	node to node distance $= \lambda/2$, so there is a node at R **Or** See $\lambda/2 = 0.6$m, so there is a node at R	(1)	**5**
	(MP4 requires evidence of calculation) <u>Example of calculation</u> Tension in string $= W = mg = (0.300 \text{ kg}) (9.81 \text{ N kg}^{-1}) = 2.94\text{N}$ $v = \sqrt{(T/\mu)} = \sqrt{\dfrac{2.94 \text{ N}}{2.27 \times 10^{-3} \text{ kg m}^{-1}}} = 36.0 \text{ m s}^{-1}$ $\lambda = \dfrac{v}{f} = \dfrac{(36.0 \text{ m s}^{-1})}{(30 \text{ Hz})} = 1.20 \text{ m}$ node to node distance $= \lambda/2$, so node to node distance $= 0.60$ m.		
16ci	S and T are in antiphase **Or** 180° out of phase **Or** π radians out of phase	(1)	
	S and T are in adjacent node-to-node regions **Or** S and T are in adjacent loops	(1)	**2**
16cii	S has a greater amplitude than T	(1)	
	S is at an antinode **and** T is between a node and antinode **Or** S is at an antinode **and** T is not **Or** T is closer to a node than S	(1)	**2**
	(MP2 dependent on MP1)		
	Total for question 16		**12**