Question number	Answer	Notes	Marks
3 (a)	A - Force X 7.5 N, Force Y 7.5 N;		1
(b)	idea that force X decreases; from 15 (N) / to 0 (N);	ignore references to force Y and moments	2
		'it goes from 15 to 0' gets 2 marks	

Total 3 marks

(c)	explanation in terms of momentum OR acceleration OR pressure		3
	momentum - any 3 of:		
	<ul> <li>MP1. idea of increased time (of impact);</li> <li>MP2. same change in momentum;</li> <li>MP3. force is rate of change in momentum;</li> <li>MP4. reduces force (on knee);</li> </ul>	allow F = change in momentum ÷ time	
	OR		
	acceleration - any 3 of:		
	<pre>MP1. idea of increased distance/time (to slow down);</pre>		
	MP2. <b>same</b> change in velocity / speed; MP3. reduces acceleration; MP4. reduces force (on knee);		
	OR		
	pressure - any 3 of:		
	<ul> <li>MP1. idea of increased area (in contact with ground / knee);</li> <li>MP2. reduced force;</li> <li>MP3. pressure = force ÷ area;</li> <li>MP4. reduces pressure (on knee);</li> </ul>	allow same force symbols	

Total 9 marks

Question number	Answer	Notes	Marks
6 (a)	any 3 of:  MP1. idea of {rubbing / tearing} of {materials / surfaces};  MP2. idea of movement / transfer of electrons;  MP3. electrons have negative charge;  MP4. (object becomes) negatively charged by gaining electrons OR positively charged by losing electrons;  MP5. need for insulating material(s);	movement of positive {charge / electrons} can only score MP1 and MP5 ignore 'friction'	3
(b)	<ul> <li>any 2 of:</li> <li>MP1. idea of opposite charges OR positive and negative charges;</li> <li>MP2. idea of attraction;</li> <li>MP3. idea of an (attractive) force larger than the weight of the loose end of tape;</li> </ul>	reject if mentions positive electrons ignore 'different' condone 'unlike'	2

Total 5 marks