Question number	Answer	Notes	Marks
7 (a)	substitution into F = (mv − mu) / t; rearrangement; evaluation; e.g. 2.5 = [0.074 × 3.0 (−0.074 × 0.0)] / time time = (0.074 × 3.0) / 2.5 (time =) 0.089 (s)	 0.08 scores 2 marks if supported by valid working allow alternative method using F=ma and a=(v-u)/t allow 0.09, 0.0888 (s) condone 0.088 (s)	3
(b)	magnitude = 4.9 (N); direction = right/opposite to car;	 ignore East	2
(c)	any two from: MP1. (crumple zone) increases the time (taken to stop); MP2. same momentum change (as car 2); MP3. smaller acceleration; MP4. reference to formula force = change in momentum/time;	 allow same velocity change (as car 2) allow deceleration	2

Total for Question 7 = 7 marks