

## Mark schemes

## Q1.

(a)  $F = \frac{700}{0.28}$  1

$F = 2\,500 \text{ (N)}$  1

- (b) increases the time taken for the collision to occur  
*allow increases contact time*  
*do **not** accept slows down time* 1

- (so) the rate of change of momentum decreases  
*allow reduces acceleration / deceleration* 1

- reducing the force (on the people)  
*reduces impact is insufficient* 1

[5]

**Q2.**

(a) mass = 0.0185 (kg)

*allow 0.018 to 0.019 inclusive*

1

$$F = \frac{0.0185 \times 25}{0.060}$$

*allow a correct substitution using an incorrectly / not converted value of m*

1

$$F = 7.708 \text{ (N)}$$

*allow 7.7 (N)**allow correct calculation using an incorrectly / not converted value of m*

1

***if no other marks are awarded****a misreading of the scale giving a value between 15.6 and 15.7 inclusive that is then correctly converted giving an answer between 6.50 and 6.54 scores 2 marks**a misreading of the scale giving a value between 15.6 and 15.7 inclusive that is then not converted giving an answer between 6500 and 6542 scores 1 mark***[3]**