Answer ALL questions.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 (a) Which of these is a device used to measure force?

(1)

☒ **A** newton meter

☒ **B** ruler

☒ **C** thermometer

☒ **D** voltmeter

(b) Airbags are safety devices used in cars to protect the driver if there is a crash.

(i) State the formula linking momentum, mass and velocity.

(1)

(ii) A person inside a car has a mass of 72 kg and a velocity of 13 m/s.

Show that the momentum of the person is about 900 kg m/s.

(1)

(iii) The person experiences a crash and comes to rest in 0.29 s.

Calculate the force on the person.

(2)

force = ... N

(iv) Which statement explains how airbags protect the driver?

(1)

- ☒ **A** increase the force acting on the driver
- ☒ **B** increase the time taken for the driver to stop
- ☒ **C** increase the kinetic energy store of the driver
- ☒ **D** increase the momentum of the driver

(Total for Question 1 = 6 marks)